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AMERICAN BEE JOURNAL

AUGUST. 1916

CALIFORN STATE

How I First Found Out How Far a Bee Will Go in Search of Flowers or Any Other Blooming Thing!

American Bee Journal

BEES AND HIVES

If you are in need of supplies or bees shipped promptly, write us. Our stock is complete, no delays. Chaff and single walled hives. Bees by the pound, nucleus or full colonies. Untested queens, $1.00. Tested, $1 25. Catalog free.

I. J. STRINGHAM
105 Park Place, N. Y.
APIARIES: Glen Cove, L. I.

Unhulled and Scarified Hulled
WHITE SWEET CLOVER
YOUNG-RANDOLPH SEED CO., OWOSSO, MICH.

Bee-Supplies

LET US FIGURE WITH YOU

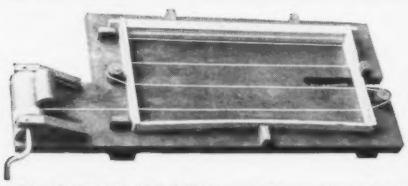
We know we can satisfy you on quality. Write for catalog.

C.C.CLEMONS BEE-SUPPLY CO.
Dept. S., Kansas City, Mo.

Northern Bred Italian Queens

More hardy than Southern bred. Try them once. Untested, 75c. Sel. tested, $1.50. Plans for beginners, "How to Introduce Queens and Increase," 25 cents.

E. E. MOTT, GLENWOOD, MICH.



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Most rapid in use. Saves cost of machine in one day. Tighter wires, no kinks, no sore hands. Price, $2 00,

G. W. Wright Company, Azusa, Calif.

OUR TEXAS BEES

Having locations where I can rear bees almost the year around. I am prepared to furnish you the very best stock of bees and queens at prices where you can afford to buy and build up those weak colonies for the honey season. My pound packages are fine for making increase at a reasonable price. One pound package, $1.50; 2-pound packages, $2.50; 10-pound lots, $13; 100 pounds for $120. Queens shipped with pound packages at 75 cents each. By mail at $9.00 per dozen. Special prices to dealers in large lots.

WM. ATCHLEY, Mathis, Texas
"The Texas Beeman"

EVERY FRUIT GROWER

Who wants up-to-date, valuable information on the vital problems of the fruit industry, such as Spraying, Pruning, Cultivating, Packing, Marketing, etc., should subscribe to

BETTER FRUIT

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BETTER FRUIT PUBLISHING COMPANY
Hood River, Oregon

Bees and Queens for 1916

GOLDEN AND LEATHER COLORED

We are now booking orders for April, May and June, 1916 deliveries at the following prices, viz.:

Prices of one and over	1	6	12	25
Virgins	$ .50	$2.75	$ 5.00	$10.00
Untested	.85	4.50	8.00	16.00
Warranted	1.10	5.50	9.50	19.00
Tested	1.50	7.50	13.50	26.00
Breeders	3.00 and up to $10.00 each.			

1-frame nuclei without queen	$1.50
2-frame " " "	2.75
3-frame " " "	3.50

When queens are wanted with nuclei add queens at above prices quoted for queen

½ lb. package, wire cages, without queens	$1.00
1 " " " " " "	1.50
2 " " " " " "	2.00

If queens are wanted with pound packages add at prices quoted for queens.

On all orders amounting to $50 and over we will allow 5 percent discount, and orders amounting to $100 and over will allow 10 percent discount from above prices.

We guarantee safe delivery on queens, and safe delivery on bees that are not in transit over five days.

OUR REFERENCE—Any Mercantile Agency, A. I. Root Co., or American Bee Journal.

Get into communication with us at once and book your orders early to avoid disappointments in the spring.

THE PENN COMPANY, Penn, Lowndes County, Mississippi

Representatives of The A. I. Root Company, and Queen Specialists.

YOU DON'T WAIT FOR MONEY WHEN YOU SHIP MUTH YOUR HONEY

We Remit the Day Shipments Arrive.

We are in the market to buy FANCY AND NUMBER ONE WHITE COMB HONEY, in no-drip glass front cases. Tell us what you have to offer and name your price delivered here.

Will also buy—
White Clover extracted and Amber extracted.
A few cars of California Water White Sage.
A few cars of California Orange Blossom.

When offering extracted honey mail us a sample and give your lowest price delivered here, we buy every time you name a good price.

We do beeswax rendering; ship us your old combs and cappings. Write us for terms.

THE FRED. W. MUTH CO.
"THE BUSY BEE MEN"
204 Walnut Street. CINCINNATI, O.

FOR SALE

My good will and line of Bee Suppiles with hardware stock in connection, in a town of 1800; doing business from $8000 to $12,000 per year. The best chance for the right party to make money. Reason for selling, ill health. Write or call.

H. S. DUBY & SON, St. Anne, Ill.

BEEKEEPERS' SUPPLIES

Sold at a reduction. Best sections, dovetail hives, foundation, and all goods for the beekeeper. Second-hand 60-lb. cans, like new, 25c per case. Give me a trial order.

PRICES FREE
W. D. SOPER
325 South Park Ave., Jackson, Mich.

American Bee Journal

BEE SAFETY—HOW?

By ordering Murry's queens. I have testimonials on file that my strain of bees are strongly resistant to European foulbrood, Isle-of-Wight disease and paralysis. Plenty of queens ready to ship on short notice from now until Nov. 1st. Safe arrival and satisfaction guaranteed. No disease of any kind in my apiaries. Three-banded Italians and Goldens. Untested, 1 for 75c; six for $4.00. Any number over that 62½c each. Tested 1 for $1.00; six for $5.00. Over that $10 per doz.

H. D. MURRY, Mathis, Texas

Gray Caucasians

Early breeders; great honey gatherers; cap beautifully white, great comb builders; very prolific; gentle; hardy; good winterers. Untested, $1.00. Select untested, $1.25. Tested, $1.50. Select tested, $2.00. The best all-purpose bee.

H. W. FULMER
Box 10, Andalusia, Pa.

Q-U-E-E-N-S AT 50c

These queens are guaranteed to be as good as money can buy They are bred by the same methods and same care as the high priced ones. They are bred from imported mothers, the best in the world, and will produce bees that are the best for honey gathering, gentleness and are not inclined to swarm.

	1	6	12	25	50	100
Untested....	$ .50	$3.00	$ 6.00	$11.75	$22.50	$43.75
Select unt...	.65	3.50	6.75	12.50		
Tested.....	1.00	5.50	10.00			
Select test..	1.50	8.50	16.00			

We guarantee that all queens will reach you in good condition, to be purely mated, and to give perfect satisfaction.
All orders filled at once.

L. L. FOREHAND
Fort Deposit, Alabama

Q-U-E-E-N-S

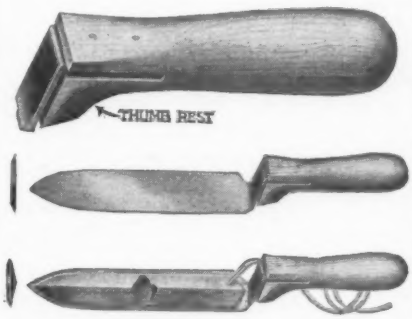
Three-band Italians. Untested for 50c each. The same as you pay $1.00 for, and just like the ones you get for $1.50. **Guaranteed** to be as good as money can buy. Every one fully **guaranteed** to give perfect satisfaction. Safe delivery. Write for prices on 25 and more.

N. FOREHAND
Ft. Deposit, Alabama

Fifty Years Among the Bees.—This is a standard book of something like 350 pages and over 100 illustrations. Its author, Dr. C. C. Miller, is a specialist beekeeper with an experience of over 50 years. He has read a majority of the literature on bees published in this country, and much of that published in Europe, and is everywhere considered as a high authority on the subject. It tells in detail how Dr. Miller keeps bees. Bound in cloth. Price, postpaid, $1.00, or with a year's subscription to the American Bee Journal, both for $1.75.

BINGHAM HONEY Uncapping Knives

With the New Improved Cold Handle



Standard length, 8½ in.; 75c.; ship. wt., 15 oz. Extra long, 10-inch; each, 85c; ship. wt., 16 oz. Steam-heated with 3 ft. tubing, $2.50; wt., 24 oz.

Our knives are made of the best razor steel, and we could produce them at least 10 cts. per knife cheaper by using inferior material. Mr. W. W. Culver, of Calexico, Calif., writes: "We have had difficulty in getting Bingham knives, such as we are accustomed to; that is, a light flexible knife that will give somewhat in moving over the comb. If you can furnish such a knife, send two standard and one steam knife. If the steam knife suits me I shall want about three." This is just the kind of knife we furnish, the kind Mr. Bingham furnished years ago, before others crowded him out with their inferior substitutes. We know, because we have kept bees nearly 40 years. Old timers will again find what they want in our Bingham knife.

A. G. WOODMAN CO., Grand Rapids, Mich.

TIN HONEY CANS—LOW PRICES

5-lb. friction-top pail lots of 50, $3.25; 100, $5.35; 203, $10.35, 1015, $50.
10-lb. friction-top pail lots of 50, $4.30; 100, $7.60; 113, $8.35; 565, $40.
60-lb. cans, two in a case, 70c per case; over 10 cases, 69c; 25 cases, 68c; 50 cases, 67c; 100 cases, 65c per case. All f. o. b. Chicago, Ill. We are making prompt shipments.

A. G. WOODMAN CO. - - Grand Rapids, Michigan

BY ALL MEANS BUY A GOOD VEIL

Muth's Ideal Bee Veil, postpaid, 75c; with other goods, 70c.

OLD COMBS AND CAPPINGS

rendered into wax with our hydraulic wax press. Perfect work.

We buy your wax at highest market price. Write us.

THE FRED W. MUTH COMPANY
204 Walnut Street, - Cincinnati, Ohio

The CANADIAN HORTICULTURIST AND BEEKEEPER

The only bee publication in Canada

It is the official organ of the Ontario Beekeepers' Association, and has incorporated with it the former Canadian Bee Journal.
Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive, and practical monthly magazine.
Well illustrated and up-to-date. Subscription price postpaid.
Canada, $1.00 a year. United States, $1.25 a year. Foreign, $1.50 a year.
Sample copy sent free on request.

The Horticultural Publishing Co., Limited, Peterboro, Ont., Can.

American Bee Journal

GOLDEN ITALIAN QUEENS

If you care to know what others think of this strain of Goldens, read this letter from a satisfied customer —

FRANKLIN, TENN., July 8, 1916.

B. G. DAVIS, SPRING HILL, TENN.,

Dear Sir:—I have one of your Golden queens whose colony has stored 250 pounds of honey this season, while the average of the yard was 90 pounds She is very prolific, and her bees are gentle and sure hustlers. Would like for you to take this queen and rear me 50 or 75 queens from her and mate with your drones, as I want to requeen with this strain. Yours truly, J. M. BUCHANAN.

PRICES OF QUEENS

	Nov. 1 to May 1			May 1 to June 1			June 1 to July 1			July 1 to Nov. 1		
	1	6	12	1	6	12	1	6	12	1	6	12
Untested	$1.50	$ 7.50	$13.50	$1.25	$ 6.50	$11.50	$1.00	$ 5.00	$ 9.00	$ .75	$ 4.00	$ 7.50
Select untested	2.00	8.50	15.00	1.50	7.50	13.50	1.25	6.50	12.00	1.00	5.00	9.00
Tested	2.50	13.50	25.00	2.00	10.50	18.50	1.75	9.00	17.00	1.50	8.00	15.00
Select tested	3.00	16.50	30.00	2.75	15.00	27.00	2.50	13.50	25.00	2.00	11.00	18.00

Breeders, $5.00 to $25.00

BEN. G. DAVIS, Spring Hill, Tennessee

THE CAMPBELL SYSTEM OF SOIL CULTURE

Everybody knows Campbell, the father of dry farming. Everybody knows that he started this great movement for Scientific Farming that is changing the desert into a garden. But everybody does not know that there is a great school, the

CAMPBELL CORRESPONDENCE SCHOOL OF SOIL CULTURE

where the Campbell System of Scientific Soil Tillage and Crop Growing are taught by mail, where a thorough knowledge of Scientific Agriculture can be secured without leaving home, at a very small expense. If you are a farmer or expect to be a farmer, send for the Campbell literature, Campbell's Scientific Farmer, the Campbell manuals, and a catalog of the Campbell Correspondence School. Sample copy and catalog free. Address,

CAMPBELL CORRESPONDENCE SCHOOL

325 Broadway - - Billings, Montana

QUEENS OF MOORE'S STRAIN OF ITALIANS

PRODUCE WORKERS

That fill the supers quick
With honey nice and thick.

They have won a world-wide reputation for honey gathering, hardiness, gentleness, etc.

Untested queens, 1, $1.00; 6, $5.00; 12, $9.00
Select untested, 1, $1.25; 6, $6.00; 12, $11.00
Safe arrival and satisfaction guaranteed. Circular free.

I am now filling orders by return mail.

J. P. MOORE

Queen Breeder Rt. 1, Morgan, Ky.

EUROPEAN FOULBROOD

is spreading in various parts of the country. The first step in its cure is a vigorous strain of ITALIANS

The Root Strain of Bees have Shown Themselves to be Highly Resistant

While we do not claim their introduction will alone cure European Foulbrood, or that it will not make a start in their colonies, we have reports of where they have, with a little help, fought themselves nearly clean of European Foulbrood which was all around them in black and hybrid colonies.

These queens will be ready for delivery about June 1. Orders will be filled in rotation. Later in the season we will make delivery promptly.

PRICES.—Our regular price is $1.50 in June and $1.00 after July 1 for untested queens; but we will club them with Gleanings in Bee Culture for one year and a queen for $1.50, provided we can fill orders for queens when we have a surplus of them. This will probably be July and August.

The A. I. ROOT COMPANY - - - Medina, Ohio

American Bee Journal

Embargo on Bee Supplies
In the East

BEEKEEPERS in the Eastern States, particularly in New England, should not delay ordering their stock of supplies as early as possible. The Eastern railroads are congested and have even placed an embargo on shipments to various points, refusing to accept freight until their roads are unburdened. Ordering your requirements a month earlier than usual will not cost any more and will assure you of having supplies on hand when the time comes to use them. This will allow for any delay which might occur while in transit.

Our New England States representatives, Ross Brothers Co., 90–92 Front Street, Worcester, Mass., have a large supply of **"Falcon"** bee-supplies, and are especially equipped to handle the New England States beekeepers' orders whether they be large or small.

Those beekeepers living in the New England States can order direct from the factory at Falconer, N. Y., or can write for the name of the nearest dealer as they find it more convenient.

Red Catalog, Postpaid **Dealers Everywhere** **"Simplified Beekeeping," postpaid**

W. T. Falconer Mfg. Co., Falconer, New York

Where the good bee-hives come from

WANTED HONEY
Both Comb and Extracted

If comb honey, state grade and how it is put up, and your lowest price delivered Cincinnati.

Extracted honey, mail a fair size sample, state how it is put up, and your lowest price delivered Cincinnati.

If prices are right, we can use unlimited quantities.

H. C. W. Weber & Company, 2146 Central Avenue, Cincinnati, Ohio

Sweet Clover Seed
QUICK GERMINATION

Get our "Scarified," sweet clover seed which will germinate from 85 to 95 percent the first year and thus insure you a good stand right from the start. By sowing our seed you will save money, as it only takes about half as much scarified to sow an acre as ordinary hulled seed.

PRICES

	1 lb.	10 lbs.	30 lbs.	100 lbs.	Per bu. 60 lbs.	5 bu. lots per bu.	10 bu. lots per bu.	Lbs. per acre
Unhulled White Sweet Clover Recleaned	25c	$2.00	$5.10	$16.00		$ 4.80	$ 4.50	25 to 30
Hulled White Sweet Clover recleaned and scarified	30c	2.75	6.75	22.50	$13.50	13.00	12.50	6 to 10
Hulled Yellow Sweet Clover, recleaned and scarfied "Melilotus Officinalis"	20c	1.80	5.10	17.00	10.20	9.50	9.00	8 to 12

When seed is wanted by parcel post, be sure to include postage. Bags will be included in the weight in parcel post shipments.

PLEASE NOTE—All of our seed is thoroughly cleaned. The scarifying process usually breaks some of the seeds and we remove all broken seeds. This is an important saving to you. Samples on application.

YELLOW SWEET CLOVER—Many people fail to recognize the value of the biennial yellow sweet clover as a honey plant. The fact that it blooms two weeks earlier than the white variety makes it especially valuable to the beekeeper.

Be sure, however, to get the biennial variety as quoted above.

DADANT & SONS, HAMILTON, ILLINOIS

BARNES' Foot-Power Machinery

Read what J. I. Parent of Chariton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc. to make with this saw. It will do all you say of it." Catalog & price-list free

W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS.

Advanced Bee Culture,—A new edition of this book by the late W. Z. Hutchinson, of Michigan, is a practical and up-to-date bee book for the specialist beekeeper. Its 200 pages touch on subjects pertaining to modern beekeeping, and all are discussed with the authority of an expert. The book has many beautiful illustrations. It is cloth bound, with a cover design in natural colors on its cover. Price, postpaid, $1.00; or with the American Bee Journal one year, both for $1.75.

Nominated by Acclamation

Lewis Sections!

The Kind that Does Not Break in Folding

Beekeepers everywhere, no matter what their preference may be for hives or special apparatus, agree that when it comes to sections that

There are No Sections Like Lewis Sections

WHY IS THIS TRUE?

FIRST

Because LEWIS SECTIONS are made of Wisconsin basswood—the best material known for sections—the stock used is first carefully selected by the lumber people—but this is not enough—when it reaches the Lewis factory it is re-sorted by the Lewis inspector, leaving only the whitest material to go into LEWIS SECTIONS.

SECOND

Because the V groove in LEWIS SECTIONS is scientifically made—it is cut just deep enough—but not too deep, so that the section will not break when folding or be loose at the corners.

THIRD

Because LEWIS SECTIONS are polished on both sides on a double surfaced sanding machine which was designed in the Lewis plant especially for this purpose.

FOURTH

Because LEWIS SECTIONS are packed in a tight wooden box entirely enclosing contents —no discoloration from air or sun can occur, no matter how long they are carried in stock—this package is strongly braced at all corners, insuring delivery in good order.

At the same price you pay for other standard makes of sections you get all of the above—the making of Lewis Sections has been under the supervision of a Lewis Section Expert who "has been at it" for over thirty years—no wonder Lewis Sections are perfect. One of our customers tells us that he has put up (folded) thirty thousand Lewis Sections in a season, and has not found one section in the whole lot that was not perfect. Can we mention any more convincing evidence of quality? Can you say the same of even five hundred of any other make?

Insist on the Lewis Sections—Look for the Beeware Brand

G. B. LEWIS COMPANY, WATERTOWN, WIS.

Catalog on request giving nearest distributer

AMERICAN BEE JOURNAL

Vol. LVI.—No. 8 HAMILTON, ILL., AUGUST, 1916 MONTHLY, $1.00 A YEAR

MINNESOTA SNAP SHOTS

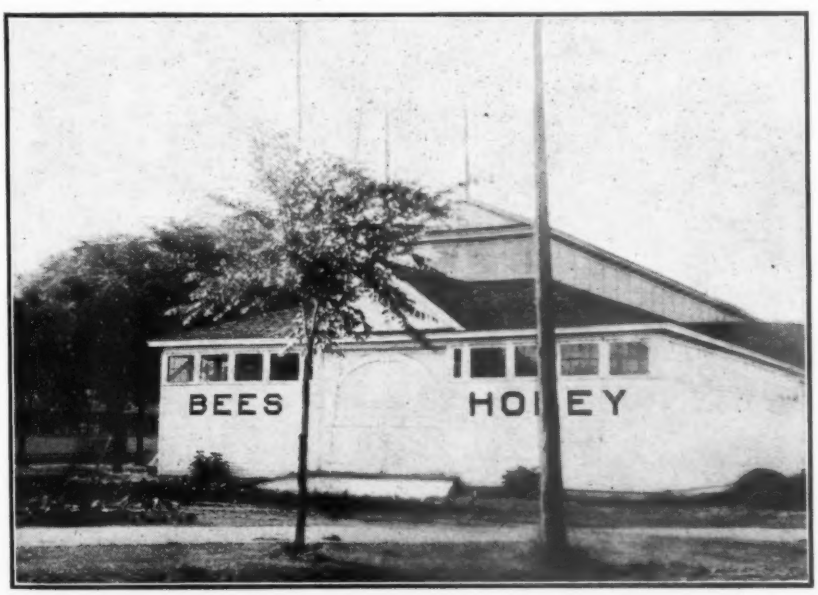
Items of Interest About Minnesota Beekeepers Gathered By Our Staff Correspondent During a Swing Around the State

THE Minnesota beemen are live wires. Those who keep in touch with the progress of the industry know already that the beekeepers of that State have been pushing things for some years past. They have a splendid building devoted especially to the exhibition of hive products at the State Fair and better premiums than any other fair offers. They have a separate department for bee-culture in their State University, and it is well supported. While several States include beekeeping in the courses at the agricultural colleges, as far as we know Minnesota is the only State which gives to the industry a separate department on the same basis as dairy and other agricultural activities.

Feeling that our readers would be interested in knowing something of the conditions in the State that leads the country in the amount of State support, and something of the men who have been responsible for bringing about this condition, our staff correspondent spent a few days in our sister State.

Several hundred miles of railroad and automobile journeys enabled him to visit a few representative apiaries. The average production per colony is high, but they have the same honey-plants that are common in all the northern States. White and alsike clover furnish the main dependence, with basswood and such fall flowers as heartsease, asters etc., in addition. If crops are good it seems due rather to good beekeeping than to especially favorable locations. There are thousands of acres of good clover pastures, and possibly the honey flows are a little more dependable than farther south. The writer could see very little difference in the conditions in Minnesota from Wisconsin and Michigan.

MRS. BUTTERFIELD, A SUCCESSFUL MINNESOTA BEEKEEPER



BEE BUILDING AT THE MINNESOTA STATE FAIR

The beekeepers of the State work together harmoniously in their State organization, else they never could have accomplished what they have done. The writer, on his various trips in Minnesota, has never yet met a calamity howler, among the beekeepers. The association agitated the importance of a division of bee-culture at the University until the legislature was prevailed upon to give beekeeping the same attention given to pigs, cows and sheep. The work has grown until two men now give their entire time to it. Besides the usual class work, queen-breeding is carried on

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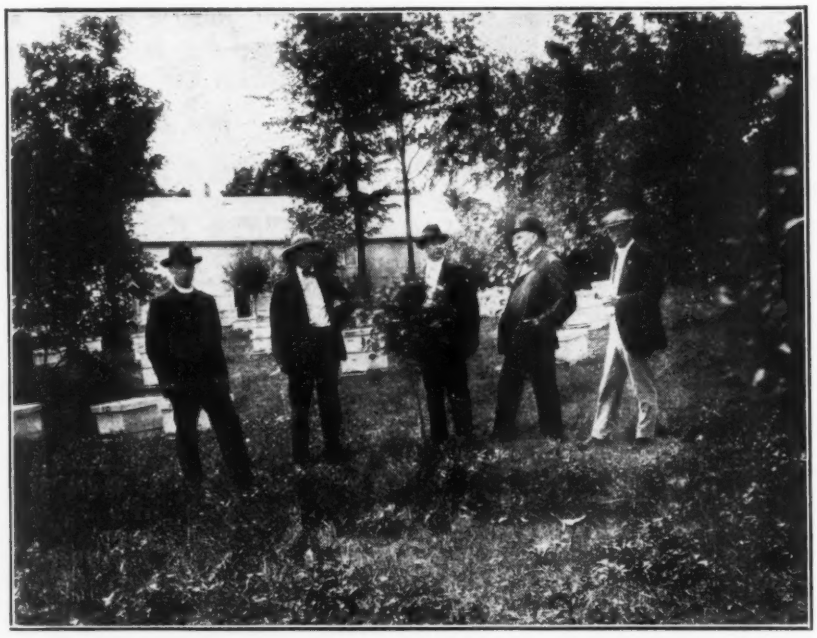
extensively for the purpose of improving the stock of bees in the State. Experimental work of various kinds, a survey of honey sources and of other conditions relative to beekeeping are in progress. L. V. France is in charge of the experimental work and the survey, and Prof. Francis Jager personally supervises the queen-rearing operations.

On arrival at Minneapolis our representative was met at the station by J. P. Doll, Dr. L. D. Leonard and F. W. Ray, all former officers of the Minnesota association, who are now content to work just as loyally in the ranks. In Mr. Ray's automobile the journey was made to St. Bonifacius, to see the home apiary of Prof. Jager, where the State queen-rearing operations are carried on. It is a most delightful ride of about 25 miles along the shores of lake Minnetonka and through the native groves now largely settled by city people who go back and forth to their work in town. There are many basswood trees, and the clover was just beginning to yield well. The bees were humming merrily. On the way, we stopped at the Butterfield home at Long Lake. Mr. Butterfield is engaged in fruit growing and Mrs. Butterfield has taken up beekeeping which she finds very interesting. Surrounded by forest trees they have a sheltered position where fruit bloom starts the bees nicely in spring. Clover is abundant, and they also get some fall honey. Last year they harvested 14,000 pounds from 78 colonies. The women beekeepers are usually enthusiastic, and Mrs. Butterfield is no exception.

Father Jager is a very busy man. He still has supervision of his parish, although an assistant assumes the work. While most of his own time is occupied during the summer months with the rearing of the hundreds of queens for distribution to the beekeepers of the State, he still supervises his outapiaries, which are cared for by two assistants. Arriving at his home we were met with a cordial welcome and enjoyed every minute of our stay. The apiary is situated in a grove of seven acres with good shelter from north, east and west. Enough of the trees have been cut to permit the grass to grow freely, and still retain sufficient shade for practical purposes. The ground rises from the road, and a fine new work-house is nearing completion at the crest of the hill. There are two stories, beside a concrete basement for extracting, etc. The building is 24x66 feet and when completed will be one of the finest equipped honey-houses in the country. Mr. Jager prefers to carry on the queen-rearing at his own apiary, because the neighborhood is free from disease, and disease is present in the vicinity of the university.



LIVE MINNESOTA BEEKEEPERS—PROF. JAGER, F. W. RAY, P. J. DOLL, DR. LEONARD, AND PROF. JAGER'S ASSISTANT AT THE JAGER HOME APIARY

There are about 350 nuclei scattered under the trees. The hives are placed far enough apart to prevent danger of queens entering the wrong hives. There are no other bees nearer than two miles, and these have been requeened with satisfactory stock Care has been taken to secure the best possible breeders. Every queen is given a chance to fill the combs in the nucleus which she occupies, with eggs before she is sent out. In this manner the bees in the little colonies used for mating are renewed, and the quality of the queen is tested to a limited extent. All queens are destroyed which do not come up to the high standard set by Prof. Jager. Unlike a commercial enterprise which must be made to pay, this establishment, supported by the State of Minnesota, is to furnish the beekeepers of that State with the best possible breeding stock, to improve their strain of honey producers. The queens are sold for 50 cents each, and the number is limited to three to any one person, who must be a resident of Minnesota.

They expect to send out 1,000 queens this season, thus providing more than 300 beekeepers with good stock with which to rear their own queens. While some are mated in baby nuclei most of the nuclei are composed of 2 Langstroth frames. Partitions in 8 frame hives provided 3 nuclei to each hive. An entrance at one end and at each side makes it possible to provide an opening to each of the compartments with little danger of mixing.

A short visit was made to the University farm to meet L. V. France, who as Prof. Jager's assistant is starting

L. V. FRANCE AND STATE INSPECTOR BLAKER AT THE UNIVERSITY APIARY—BEE BUILDING IN BACKGROUND

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several interesting lines of research. The picture shows the apiary building with the long lines of beehives which constitute the college apiary. The bee department is provided with ample quarters for their work. Experiment for artificial mating of queens is being carried on extensively. While it is too soon to determine the possible value of this work the results will be watched with interest.

DR. LEONARD'S HOME.

The evening found us at the delightful country home of Dr. L. D. Leonard, who is well known to many of our readers because of his activities as secretary of the Minnesota Beekeeper's Association in years past. The doctor has an office in Minneapolis for his professional duties, returning to his home at the close of the day. A 20 mile trolley ride brings him to as pleasant surroundings as can be imagined. Although within two blocks of the car line, he lives as quietly as though he were a thousand miles from the city. His home is surrounded by native trees, and a little lake lies before his front door, where the water birds come to nest and the water lilies bloom in profusion. The Doctor is great for experiments, and his apiary has been the trial labratory of many implements now in use in his State. We plan to show some of his inventions at some future time. Just now he is experimenting with shallow extracting combs with the idea of preserving a set containing about 25 pounds of honey to be placed over each colony for winter stores. With a bee-space under these shallow combs, which provides easy access to different parts of the super for easy movement between the combs, he hopes for better wintering than on the full-depth combs alone. His limited trial has been very encouraging.

F. W. RAY.

Mr. Ray is a teacher of manual training in the Minneapolis schools and at the same time a very practical beekeeper. Ray looks for the dollars rather than the fun to be had from beekeeping. His apiary faces a small pond which would be called a lake in some localities. The bees were piling in the honey at the time of of our visit, and there was every prospect of a satisfactory harvest. Ray succeeded Dr. Leonard to the office of secretary of the State association, which office is now held by Prof. France. He placed his big touring car at our disposal and gave us a most interesting opportunity to see beekeeping about the twin cities. In passing through the city our attention was called to a small apiary beside the sidewalk and next to the police station. The bees are the property of the police captain, who also has an apiary on the roof. It is unusual to see bees in such a situation, yet we were informed that they had not annoyed the thousands of people who pass daily. As will be seen by the picture the bees are on ground that properly belongs to the street.

THE APIARY INSPECTOR.

In the evening a group of congenial spirits sat down to dinner together at the home of Chas. D. Blaker, the inspector of apiaries. In Minnesota the office sought the man, which is unusual nowadays. There were several candidates for the position, but the leaders in the association got together and decided that Blaker was the man they wanted. They went to the governor with the request that he be appointed. In Minnesota the inspector is on salary, so that he is free to give his attention to the interests of the beekeepers throughout the year. In most states the work is paid for by the day, and since a man must look after his own business it sometimes happens that such matters are not attended to as promptly as they might be if the inspector had no other duties. Mr. Blaker has a very good system of records, so that conditions in any locality can be followed up from year to year. He is now president of the association.

THE F. W. RAY APIARY IN MINNEAPOLIS

EXAMINING THE QUEEN-MATING NUCLEI—PROF. JAGER, F. W. RAY AND PROF. JAGER'S APIARY ASSISTANT

THE HOFMAN APIARIES.

The morning of the fourth of July our party went to Janesville to see the Hofman apiaries. Mr. E. L. Hofman is probably the largest honey producer in Minnesota. At present he has 850 old colonies and an increase of 90 making 940 colonies in all. Hofman belongs to that rare class combining neatness with good practice and extensive production. His hives are nicely painted, stands are level, grass is cut, all equipment is in place, and everything is slick as the parlor of a Dutch housewife. With seven yards, he has no time to

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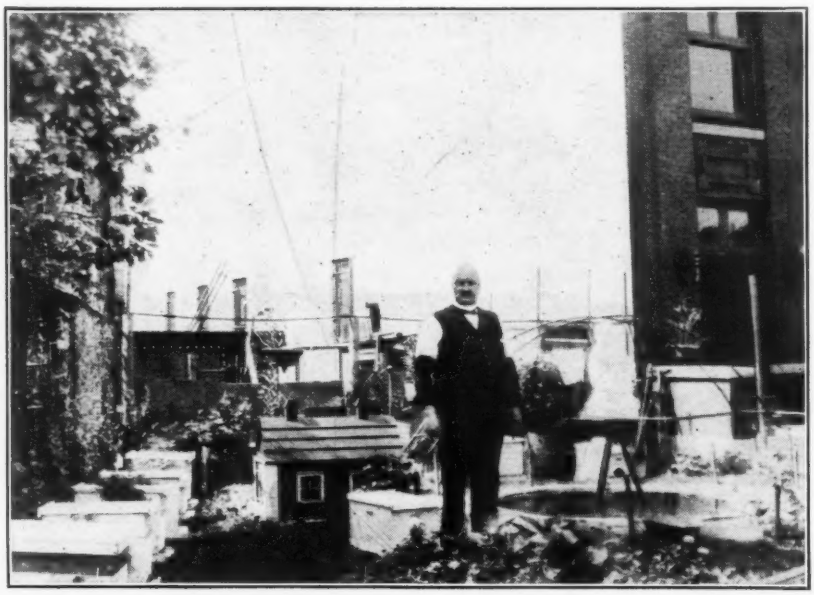
permit the grass to grow under his feet during the honey flow. The surprising feature is that he finds time to care for his hundred acre farm and to do a good business with a clover huller in the fall. He did not say so, but the writer has a notion that he keeps the huller as much for the convenience of his neighbors who grow alsike clover for seed, as he does for the profit from the machine. With a large acreage of alsike grown for seed, his chances of success are greatly increased.

We were much pleased to meet Matt Miklovitch, of Krain, Austria, at the Hofman home. In his home country Mr. Miklovitch is connected with extensive apiaries operating 1,500 colonies on the migratory plan. He is spending the summer with Mr. Hofman in order to become familiar with American methods, and to learn whether some of our ways can be adopted with profit in his country.

good stock is apparent. The cover picture of our July number gave a good idea of the appearance of one of the outapiaries. A corner of the home-apiary and the bee-cellar are shown herewith.

At the time of our visit the honey flow was just beginning, and many of his colonies were three stories high, with the brood on jumbo frames. More and more of the extensive producers are being converted to the deep frame because of the ease with which swarming is controlled. There was prospect of an average of a hundred pounds to the colony, but you never can tell. We hope that Mr. Hofman will tell us later all about it.

With pressing work at home calling, and other journeys to be taken shortly, the time spent with our Minnesota friends was too short. When men place the business of honey production on so high a plane it makes one feel proud to be a beekeeper.



POLICE CAPTAIN AND BEES BESIDE THE STATION IN HEART OF CITY

When beekeeping is carried on extensively it becomes necessary to eliminate the non-essentials. Hofman seems to be able to care for twice as many colonies as most men, without extra labor. Our picture shows the feeder which he uses. It is a large open pan which at one filling will hold the syrup made with 200 pounds of sugar. It would be an endless task to place syrup inside a thousand hives, but it is not a big task to fill one of these outdoor feeders in each of seven yards and let the bees help themselves. Of course the colonies that already have a sufficient supply will get as much as those which are short of stores, but it won't be lost. With one assistant, Mr. Hofman is caring for all these bees, and it would be physically impossible to care for so many and give each the detailed attention of ordinary methods. His combs are wired; full sheets of foundation are used so that there is little dronecomb in his hives, and

THE E. L. HOFMAN HOME APIARY AT JANESVILLE, MINN.

Disposing of the Honey Crop

BY G. C. GREINER.

WE may not all pursue the same method of disposing of our honey crop, but we must all agree that the sale of our season's products at paying prices is the most essential part of our profession. If we have to sell below cost, beekeeping will be uphill business and lose its most inspiring feature as far as gaining a livelihood is concerned.

In all my past beekeeping life I have found only one beekeeper who kept a limited number of colonies exclusively for his own amusement and enjoyment. The family undoubtedly used all the honey they wanted on their own table, but to sell the overplus did not seem to be any temptation to them.

At my former home, many of my farming neighbors kept from one to ten or more colonies of bees, of course, all in the various forms of the old fashioned box-hive patterns for the purpose of supplying their own table with the coveted sweet. Whatever they had to spare they sold as best they could regardless of cost; they considered the income from this source a clear gain.

It is very different with the professional beekeeper. He expects to make his living by his bees, and if he fails to dispose of his crop above the actual cost, his season's work will prove a financial failure.

Among the different methods adopted by their advocates may be mentioned cooperation, selling on commission, selling right out at wholesale, selling from house to house direct to the consumer. etc. All these have their advantages and disadvantages, and it depends very much on the conditions and environment of the individual, which is best. Years ago, before I moved to my present location, circumstances compelled me to depend wholly on city commission houses for my honey sales. Our experience at that time had not yet taught us that it was safer and cheaper to ship comb honey by freight (in carriers) than by express. The commission fee, 10 percent, in addition to the exorbitant express charges,

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which I had to pay, reduced the net returns to such low figures that a profit above actual cost was out of the question. But what else could I do? The surrounding country was too sparsely settled to make selling from house to house a profitable undertaking, and no city market being within easy reach, I had to submit to these unfavorable conditions. The very best of my basswood honey, which was in no way inferior to the fancy white clover I produce in my present location, seldom netted me over 12 cents, and frequently less.

I had reason to believe that that same honey sold at that time to the consumer at from 22 to 24 cents, when I had to be satisfied with about one-half of those figures. I wondered many times why we producers could not cut out some of these intermediate expenses, and at the same time stimulate the use of honey by furnishing our goods direct to the consumer at a less price. I could account for some of these outgoes. The express company charged $1.25 per hundred and the commission firms 10 percent for their service, covering together about 3 cents per pound. But what about the remaining 8 or 9 cents? Did they go into the retailer's till as his profit? If so, he received too big a share.

Since I have moved to my present home, some 14 or 15 years ago, I have changed the foregoing program materially. Present conditions enable me to deal direct with consumers and retailers, and by doing so save all my former commission and express expenses. Of course, I have to spend my time on the road; but during the latter part of the honey season, when the hurrying work of the bee-yard is out of the way and when the early honey is ready for the market, a couple of days each week on the road pay me ample traveling fees.

At first I started to sell from house to house. Although I did quite well under the circumstances, it did not not agree with my nature. Being naturally bashful and adverse to making friends with strangers, it is the hardest work I can do to enter a house and introduce myself and my business where I am not already known. This natural inclination, or rather disinclination opened up a new outlet for my product. I am within easy reach of two city markets, one four and the other six miles from my home, and to escape the embarrassing feature of calling at private homes, I made a trial trip to one of them. The result was surprisingly satisfactory. There I could sell more honey in two hours than I could sell in two or three days on the road. This discovery induced me to change my former tactics of selling from house to house to making regular weekly visits to these two markets, where, by close attention and fair deal I have established a home market that furnishes a ready outlet for all the honey I can raise.

If my crops should be counted by the 25 and 50 tons, I would probably have to look for another market. But I am a small beekeeper. The few tons I produce at present I can easily dispose of at fairly good prices at these home markets. My advanced age compels me, as Dr. Miller says, to long for less work. My ambition does not run so much for the greatest number of colonies I can keep as for the greatest average amount of surplus honey I can take from my bees. If with better methods and less labor I can take the same amount of honey from one-half of the bees it formerly took under common management, I am the gainer in more than one respect, and in this I have been successful beyond my most sanguine expectations.

La Salle, N. Y.

Selling the Honey.—A good crop, in some places a record-breaking crop, has been harvested in the central and northern States.

When you establish your prices for honey, bear in mind that sugar is high in price this season and that honey should sell and usually sells at better prices than sugar. On the other hand it is a mistake to ask exorbitant prices. Honey cannot be a staple unless the families of limited means can afford to buy it.

Avoid shipping your crop to the large centers, from whence it will be shipped back to your local retailers and country stores. Work your locality thoroughly, exhibiting samples to prospective customers, or hire some competent salesman to do it for you. It will pay better than shipping your honey away for an unknown price.

There is nothing so attractive as honey, in the entire line of country produce, and consumers are easily secured if the honey is properly put up and well presented. The United States, with a little effort on the part of the honey producer, can consume readily twice as much honey as has ever been put upon its markets.

HOFMAN'S OUTDOOR FEEDER AT THE HOME APIARY

G. C. GREINER IN HIS WELL KEPT APIARY

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THE EDITOR'S VIEWPOINT

Breeding for Better Stock

In our effort to breed for better stock we are handicapped by the fact that we cannot control the mating of the queen, and the average beekeeper pays no attention to the matter of drones. Yet this is a real mistake. Although we are utterly helpless as to the absolute control of the mating of any queen, we can do no little to control the probabilities in the case. We can suppress almost entirely the rearing of poor drones, and have none but good drones reared in the apiary.

To be sure, the drones from neighboring apiaries are to be reckoned with. A virgin may meet a drone from a colony three miles or more away. Yet while such a thing is possible, some maintain that a virgin rarely goes more than a quarter or half mile from home on her wedding trip. If that be so—and it would be a difficult thing to prove whether it be true or not—and the drone goes no farther from home than the virgin, then we are safe if there be no other bees within a mile. In most cases an up-to-date beekeeper who makes much of a business of beekeeping is not located within a mile of any other apiary of considerable size. So his drones are in the majority, making the chances for home mating greater to the extent of that majority.

Clearly, then, it is a matter of importance, and of great importance, that we encourage none but the best drones. How shall we do that? "Oh, that's easy," you say. "Select half a dozen or so of the best colonies, rear virgins from one of them, and rear drones from the others. That's all there is to it." Is it? Suppose we consider the matter a little.

A certain colony in the apiary, in an average season, yields a surplus of 100 pounds, and we call the queen of that colony a 100-pound queen. Of course, it is the workers that do the storing, and a worker of that colony depends for her character, not only upon her mother, but also upon the drone with which her mother mated. In other words, that worker is the daughter of her mother and also of her father, her father being the drone with which her mother mated. While it is true that the worker is the daughter of her mother and of the drone with which her mother mated, it is not true that the drone is the son of his mother and of the drone with which his mother mated. As the drone proceeds from an unimpregnated egg, he is not at all influenced by the drone with which his mother mated. He is the son of his mother alone; or if you insist that he must have a father, then he is the son of his grandfather, the drone with which his grandmother mated. He is of the same blood as his mother was without any reference to her mating; that is, his blood is the product of the combined blood of his grandmother and the drone with which she mated.

As his grandmother gets her rating from that combined blood, whether she be a 50-pound queen, a 100-pound queen, or whatever she may be, the drone will have precisely the same rating as his grandmother on his mother's side. If his grandmother is a 50-pound queen, he is a 50-pound drone. His mother may be a 25-pound queen, a 75-pound, or something else. That doesn't make any difference; he is a 50-pound drone, because his grandmother was a 50-pound queen.

Now let us see how it will work out to have half a dozen of the best queens, using one for rearing virgins and the others for drones. Suppose they are all 150-pound queens. Any one of them is all right for rearing queens, but how about drones? One of them may be the product of a 200-pound queen and a 100-pound drone, and her drones will be all right. Another may be the product of a 100-pound queen and a 200-pound drone, and drones will not answer. Just remember that in considering the value of a drone, we are not to consider his mother, but his grandmother.

With this view of the case we have the comfort of knowing that the problem of securing the best drones is made immensely simpler and easier. For if all our queens are reared from our best stock, the matter of drones takes care of itself automatically. No matter if a queen has mated with the poorest scrub stock of a neighbor, her drones are just as good as any, for they come from the same grandmother.

So rear queens persistently from best stock, and suffer no drone that has not a respectable grandmother.

C. C. M.

When we first kept Italian bees, in the sixties, we found hybrids from our Italian drones three miles away, but it was through a fairly level country. In Switzerland they hold that bees a mile and a quarter away are safe from impure dones.

Probably none of us had looked into this matter of the drones' forbears as Dr. Miller has done in the foregoing. Breeding for better stock is especially indispensable with the men who make it a business to sell queens. We call their attention to both this article and the one on queen selection.

To avoid rearing drones in undesirable colonies, it is not only necessary to cut out the drone-comb, before the queen breeds in it, but it is indispensable to replace it with worker-comb, as the bees would almost invariably build drone-comb again in the same spot. Some drones will be reared anyhow. But we can avoid the promiscuous production of thousands of drones in all but the colonies of our selection. In those we will encourage it. As to our neighbors' bees, if we cannot prevail upon them to do likewise, we can at least be certain that through our efforts their own bees will finally improve. We can also rear drones and queens at seasons when their bees have no drones, either early or late. Success always attends the persistent worker.

C. P. D.

The Prospect

During the past few weeks our staff correspondent has traveled about 5000 miles over eleven States, from Niagara Falls, New York to Aberdeen, S. Dak. In all this region there is an unusual crop of white and alsike clover, and prospects for a crop of clover honey were very good indeed. By the time

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this is printed the early flow will be over and much of the honey extracted. While we anticipate a good crop we can see no reason why a fair price should not be realized. Those who get nervous when a big crop is in sight and sell at the first opportunity are quite likely to sell below the best market price. When a good price is offered one will do well to close out early, but it is a mistake to sacrifice anything in order to insure an early sale simply because the prospect indicates a large crop.

The area where honey production is profitable is constantly being extended. In South Dakota and Nebraska the clover growing districts are gradually being extended westward. White clover and sweet clover are now common in many localities where they were not to be seen a few years ago. There are still many sections where mustard, which grows abundantly in the wheat fields, is about the only source of nectar during the clover season, but yellow sweet clover is being scattered along the railroads and highways, and white clover is beginning to appear in similar places.

One man who was visited shipped a colony of bees from Wisconsin several years ago. They have received but little attention and have increased by natural swarming until the neighboring farmers are now supplied with a few colonies, and the original apiary has increased to 40 colonies. They have done so well for their owner that he plans to make substantial increase and to give them much more attention. As Dakota grows older and the wheat fields give way to pastures and diversified crops a large area of honey-producing territory will be added. However, there is little danger of overstocking except in limited localities in any State as yet. Not 5 percent of the available territory seems to be occupied in any State east of the irrigated regions. With so much unoccupied territory to be found by going a short distance there is little excuse for crowding into territory already fully stocked.

Average Crop of Honey

One of the questions a beginner is pretty sure to ask is, "How much honey per colony should I expect?" The question is a troublesome one, and it is not at all certain any one has the right answer. If we take the reports given in a bee journal during any given year, and strike an average, that average is sure to be much higher than the average of all the beekeepers of the country. This for more than one reason. In the first place, those who take bee journals and report in them are likely to be better beekeepers than those who do not. In the second place, we do not have in the bee journals reports from all the subscribers. Beekeepers, like other folk, like to tell of their successes, but not of their failures. So the reports in the bee journals tell us of the possibilities rather than what is done in general, and we cannot get from them very much of an idea as to the general average.

Last year, under date of Aug. 5, Morley Pettit, the efficient Canadian leader, sent out a "Final White Honey Crop Report," which gave the average number of pounds of honey 55.1 per colony. The addition of the fall flow would, of course, increase that. But that report included only 19,107 colonies, and it is estimated that there are 300,000 colonies in the province of Ontario. That was only one out of 15, and no doubt the other 14, if reported would bring down the average greatly. In any case the report for a single year gives nothing decisive.

In his book, "Beekeeping," Dr. E. F. Phillips says: "In apiaries managed for comb-honey production, it is perhaps fair to estimate the average annual crop at 25 to 30 sections. For extracted honey, larger averages may be expected, perhaps of 40 to 60 pounds." If that errs either way, it is quite possible it may be on the side of being too high. At any rate, there are men who have made a success in beekeeping whose average in their earlier years of inexperience did not show up so well.

So the man who gets per colony 25 to 30 sections, or 40 to 60 pounds of extracted honey need not be discouraged. But he should never be satisfied to be only average. C. C. M.

A Special Equipment Number

Some of our readers have suggested that we should issue a special number of the American Bee Journal devoted to the description of equipment. We are considering the matter and if there is sufficient interest will do something of the kind in November or December. If our readers who have worked out some new plan of operations will describe the method fully, and if possible send us pictures to illustrate it we will be glad to have it and will make use of as many such articles as space and importance will justify.

Nearly every practical beekeeper has something which he has developed in connection with his work which may be of interest to many others. Equipment which saves time and lightens labor is always worthy of being given to the public.

Another Step in Cooperation—Texas Honey Producers Organize

More than 70 beekeepers from every district in Texas, representing more than 15,935 colonies of bees, met recently in San Antonio, and organized the Texas Honey-Producers' Association. They will incorporate with a capital stock of $25,000, of which more than $5000 was subscribed from the floor of the convention. The shares are in demominations of $10, and each member is limited to 100 shares. To make the organization most effective, the organizers went on record as favoring the holding of small allotments of ten shares each.

The purposes of the organizati on as expressed during the convention are primarily for cooperative selling, advertising, and for the standardization of the Texas output of honey, both in quality and packing. The organization is modeled after the plan of the "Colorado Honey Producers' Association," the strong and successful cooperative organization whose headquarters is Denver.

A system of grading and labeling will be established with inspectors at the various points of collection and re-distribution. A distinctive trademark or label will be adopted, and every crate of honey put out by members of the association will be thus labeled. Directors for the new association were elected as follows: W. A. Winters, Jourdanton; Louis H. Scholl, New Braunfels; Richard Voges, Poth; W. C. Collier, Goliad; W. J. Stahmann, El Paso; Henry Brenner, Seguin; and E. G. LeStourgeon, of San Antonio.

Officers elected are: President, Louis H. Scholl; vice-president, W. J. Stahmann; secretary, E. G. LeStourgeon. Some of the principal beekeepers of the State were present, among them being Mr. Scholl, who has 1600 colonies; W. C. Collier, 1300; J. C. Cox, 450; R. J. Ormand, 530; Tom Campbell, 500; Louis Biediger, 550; W. J. Stahmann, 1200; W. A. Winters, 1000; W. A. Grant, 475; E. G. LeStourgeon, 860.

With as able officers and directors as has this association, it should gather all the influential beekeepers of Texas under its standard for their own good, and be a success from the beginning.

Further information may be obtained by addressing the new secretary, Mr. E. G. LeStourgeon, of San Antonio.

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No. 3.—A Trip Through Texas

BY THE EDITOR.

OUR third trip, on March 13, took us to the Medina County Beekeepers' meeting, at Hondo, a distance of 50 miles west of San Antonio, and this was made in an automobile, in company with the State Entomologist, Mr. Paddock, and our inseparable friend, LeStourgeon. Mr. Paddock had arrived the same morning from College Station.

I do not know what impression my account of Texas has so far produced upon the reader. It may be unfavorable, as far as the description of the country is concerned. But I want him to know that, as a bee and honey country, those brushy plains and low hills can hardly be equaled, except by highly cultivated localities such as the alfalfa or the white clover regions. I compare the chaparral, as it is called, to the heather plains of Gascony, described by me in November, 1913, the "Landes," fit only for pitch pines, cork oaks and bees. The chaparral, however, is fit only for bees and cattle. They say that it takes 10 to 30 acres of it to support one steer. But the possibilities of honey are endless, and that is why the beekeepers are all large producers. As stated by Prof. C. E. Bartholomew, of Iowa, in the last Iowa report, "Texas has more successful up-to-date beekeepers than Iowa and less persons who keep bees."

Owing to a slight tire trouble, we had to stop for a half hour in one of the wildest spots along the way, and wife and I took occasion of this delay to take a walk and lose ourselves a little while, in the brush. There was for us an enchantment and more or less romance, in this little walk, in such silent solitude. Men are driven to poetical effusion, by life in such a country, and we take the liberty to break our rule and quote one stanza from a poem by one of our southern beekeepers:

> "And men live there; a hardy race,
> Like none born on the earth;
> With fearless eye, a sun-tanned face,
> And hearts of truest worth,
> Proud of their Texas birth."
>
> —G. E. L.

They say that, in some districts, there is plenty of game yet, and a photograph received from friend Laws, some years ago, is good evidence of it.

We arrived in Hondo, a little before noon. It is the county seat, and has a very pretty courthouse. We entered the hotel and asked for a room, as we expected to remain over night. The landlord was playing dominoes. He pointed to the desk and said: "There is the register. You'll find a room at the top of the stairs." And he continued playing. We found the room, washed our faces and refreshed ourselves. Then we had lunch.

After lunch came the meeting at the courthouse. Prof. Paddock delivered a speech, upon several bee subjects, but mainly upon bee inspection and the treatment of foulbrood.

Prof. Paddock is State Inspector of Apiaries as well as State Entomologist., He does but little inspecting himself but has under him some 25 county inspectors in as many counties. The Texas method is to appoint inspectors in such counties as have a local association and select for this purpose men indicated or recommended by the local association. This method has excellent results, because the inspectors are well known. In this way a good feeling exists between the State Inspector and the local beekeepers who are always ready to lend a hand, as I could see by the favorable comments of the members present. The central office of the inspector serves as a tabulating and recording station, from which directions are given to the various inspectors, as from the headquarters of an army.

Personally, I spoke to the beekeepers as I did at all places visited, upon the advisability of local cooperation, which must precede State or National organization in order to make the latter successful.

Among the discussions, I heard the statement made, I believe by the president of the Medina Association, Mr. A. E. Saathoff, Jr., of D'Hanis, that the moths are not only kept out of combs, but killed, by the evaporation of moth-balls if the combs are kept in a well-closed box with this drug. Dr. Bonney made a suggestion of this kind in the Bee Journal some time ago, but we did not know that it had been tried successfully. Recommendation is made to close the hive or box hermetically by using a sheet of paper under the cover. After a day or two of airing, when the combs are wanted, they lose the moth-ball odor. This is worth knowing.

Here, again, to the question of distance usually traveled by bees, the re-

W. M. FAUST, OF FLORESVILLE, TEX., ADDRESSING THE BEXAR COUNTY FIELD MEET

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plies were almost uniformly "less than two miles." Mr. Louis Biediger, of LaCoste, keeping some 550 colonies in Medina county, has apiaries three miles apart in which the quantity and quality of the honey differ, showing that their range is different. However, Inspector H. L. Mofield, of Hondo, once had his bees get honey fed outdoor to bees by W. O. Victor, four miles away. No doubt they can, and do go farther than two miles, in occasions.

As an instance of the dryness and mildness of the climate, Mr. Biediger told of having had a strong colony lose its cover, and remain with all the frames uncovered from November till March, and still prove a first-class colony. They had done all they could to close up the top with brace-combs and propolis. By the way, propolis is not so plentiful in those countries as it is in Illinois.

THE FRUIT OF THE CHASE—W. H. LAWS, BEEVILLE, TEX.

At the Hondo meeting, a number of ladies were present, three of them of the Saathoff family, who own a ranch 15 miles from Hondo. We were given an invitation to go and spend the night at the ranch and see cattle feeding on cactus the next morning. This was quite enticing to "tenderfoots" like us, and there was no hardship since they had a good automobile to bring us, and good roads. We accepted, of course. We had an opportunity to see an interesting side of Texas, in this way.

The Saathoff people own 5500 acres, have three or four ranches two or three miles apart on this pasture. The father lives with his wife and one daughter, Miss Lena, at one of the ranches, his sons at the others. Miss Lena is a *lady*, a real Texan, a splendid auto driver, and used to the circuitous roads of the chaparral. We spent the night at the ranch, and the next morning were taken, in the auto, to the cattle-feeding.

As most of our readers are probably "tenderfoots" like ourselves, it is necessary to explain that feeding cattle on cactus is a daily job in drouth times. They don't harvest the cactus. The only thing necessary to "feed" is to burn off the cactus needles. To do this, a special gasoline torch is used, which throws a broad flame over the bush. In the twinkle of an eye, a cactus bush four feet high and several feet in width, with leaves much larger, thicker, and broader than a man's hand, is stripped of its needles. The cattle, accustomed to the performance, come running and bellowing, as soon as they hear the roar of the torch. In a couple of hours two men feed over 100 head. The thornless cactus of the great Burbank was produced to obviate this labor. But it would have to be planted, cared for and protected against the cattle who would soon destroy it, since it is without defensive thorns. With this method, until cactus ranches can be established, of the thornless kind, the cattle get only as much as the owner cares to give. The supply is limitless.

The same day at noon, Miss Saathoff kindly brought us to the D'Hanis station and we continued our trip to Uvalde this time, meeting, on the train, our friend Paddock. Uvalde, which we reached at 2:00 p.m., is by many people called the best honey-producing spot of Texas. In October, 1901, the editor of Gleanings, E. R. Root, described it as the beekeeper's paradise, and paid a visit to the very man who awaited us at the station this time, Mr. W. D. Bunting. Mr. Bunting was then a bachelor. He is now a married man with a charming wife and a nice little son. Mr. Bunting was then one of the largest honey producers in the country. He has had as many as 1200 colonies and still runs about 550. He is secretary of the local association.

The beekeepers we met at this spot are all large producers. There were some 15 or 20 at the meeting, and I do not believe a single one of them owns less than 500 colonies of bees. They looked like practical men, every one of them. The county of Uvalde, in the Texas statistics published in 1913, is shown to have over 10,000 colonies of bees in movable-frame hives, and probably the tabulation is incomplete.

But the weather was too dry. The bees were invariably reported suffering, dwindling, probably for want of pollen. Usually there is plenty of pollen-furnishing flora, early in winter. This year there was none. The mesquite, however, was almost ready to bloom, and no doubt in a few days the bees must have boomed. Moisture came at

EXAMINING BROOD AND COMBS IN APIARY OF E. G. LESTOURGEON—BEXAR COUNTY FIELD MEET, TEX.—MESQUITE FLORA

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the end of the month.

We stayed that night at Mr. Bunting's. Mr. and Mrs. Victor came and spent the evening with us. W. O. Victor will be remembered by members of the National Association as the president of the Texas association when the National met in San Antonio, in 1906. He is one of the representative beekeepers of the South.

Both Bunting and Victor agree on the advisability of using cotton-seed meal as a substitute for pollen, in times of scarcity of bloom. I believe the beekeepers of Texas will do well to keep this in mind. Probably a great many already do it.

Paralysis, or May disease, or constipation (take your choice), causing dwindling, appears to be, after foulbrood, the most dreaded trouble for bees in warm countries, as well as in damp ones like England, where it is known as Isle-of-Wight disease. Mr. Victor suggests decayed or bad pollen as one of the main causes. Honey-dew from live oaks, honey from dodder and arnica blossoms souring in the hive are all suggested as initial or determining causes for this puzzling epidemic. No particular kind of honey may be blamed, since the trouble appears in countries with entirely different flora. It is the condition of the honey, rather than its kind, that causes the disease, and souring pollen may have a great influence also. The statement is almost unanimous everywhere that it is in damp confining weather that the disease begins.

The next day, we took the train for our headquarters at San Antonio. Mr. LeStourgeon had gone back there from Hondo, after the Hondo meeting, and Prof. Paddock had returned ahead of us to the college.

Our next visit has to do with our old friend Louis Scholl and the Texas college.

[To be continued.]

Short Catchy Articles About Bees

BY A. F. BONNEY.

I HAVE tried with many styles of articles to get free advertising for honey, but, as a rule, the editor detects my duplicity. However, here is one that stuck:

If a fat steer sold for what a good queen bee does, what would he bring? One dollar and fifty cents is a fair price for a pedigreed bee, and her ladyship will weigh about 20 grains. This is $36 an ounce, or $576 the pound. Now, a steer of good family should weigh at least 1200 pounds, which multiplied by $576 brings the tidy sum of $691,200.

Almost any editor will publish and readers see the statement that:

Careful study and observation have shown that a bee must visit a matter of 60,000 flowers to secure one pound of honey. When it is considered that a colony of bees will consume something like 200 pounds of honey each year in housekeeping, besides yielding a surplus of 50 to 300 pounds, it will be seen that they rival the ant in industry.

The average person is woefully ignorant of the life and habits of the honeybee, and I have ready to send out the following:

The honeybee is curious in more ways than one. If a queenbee fails to mate, she still lays eggs which will hatch, but only male eggs. During the busy season a worker-bee lives but about 40 days, but if hatched in the late fall it lives until the following spring. The drones live during the summer, but when the honey flow ceases in the fall they are expelled from the hive and left to die.

This summer I shall print an offer similar to the following:

To the school child in Washington township who sends me the best letter of 200 words on the subject, "Why I Like Honey," I will give a 10-pound pail of Bonney honey free of all cost. The letter must be in by July 15.

This offer will be sent out on postal cards and in local papers. Of course, any subject can be used, and to save printer bill one can simply send a notice to each school in their township for the teacher to post.

Buck Grove, Iowa.

Getting Better Filled Sections

BY THOS. D. BUDD.

DR. HUMPER, in Gleanings, 1913, told us how he had tried to induce the bees to build perfect sections with only partial success. The remarks of the Editor, reviewing the article, stated that breakage in shipping imperfect combs or sections, where the comb was not securely fastened to section, discouraged many beekeepers from producing comb honey and turned their attention to the production of extracted honey. At the time I thought what a pity it would be to be deprived of the beautiful sections of comb honey and see this delicious food product disappear entirely from the market. I always pay special attention to the appended remarks of the Editor in reviewing an article.

When I started to keep bees, my spare time was very limited, so I decided not to follow the slogan, "Keep more bees," but keep only a few, and see that *they* were well cared for as far as my spare moments would permit.

I did not intend to keep bees for profit, further than my personal needs, and as I only had one colony to start with, I did not invest much in tools and appliances.

My first trouble came when I tried to fasten the foundation in sections. I made a device similar to the Parker fastener, but the foundation would not adhere well to the cold section. It would often fall away after the sections were placed over the bees, and the result was very imperfect work on the part of the bees, but my fault. Some time afterward, when cleaning out some sections from which the comb had been removed, I noticed that on the three sides of the section where no wax had been applied, it was an easy matter, but on the side where the wax had been it was far more difficult to scrape the adhering comb from the section. This gave me an idea.

I decided to make a trial to *induce* the bees to anchor the comb and foundation more securely to all four sides of the section. (Think "induce" is the proper word according to the old saying about leading the horse to water). I decided to do mechanically what the bees naturally have to do before the comb is fastened to the sides of the section or any place that they start to build comb.

In watching the bees work in sections, I have noted that wherever they want the comb to adhere they apply wax enough to penetrate well into the fiber of the wood. Basswood is a very porous wood, and the fiber is soft and very absorbing, hence quite a quantity of secretion must be used by the bees in order to get the comb to adhere firmly to the section, and if the outer cells, or those next to the wood, are filled with honey, new wax is used to coat the entire surface, to prevent the honey being absorbed by the wood of the section.

APIARY OF F. K. WINKLER, OF STONEHAM, TEX., WHO INCREASED FROM TWO BOX-HIVES TO 160 COLONIES IN GOOD HIVES

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How much surface do the bees have to cover or secrete wax on when they build the section full of comb and fill the outer cells and leave no rounded edges? As an example take a 4¼x4¼-1⅞ inch section; the average thickness of comb in this style of section will be about 1⅜ inches; figure four sides 4x1⅜ inches and we have 22 square inches of surface to each section. Multiply this by the number of sections in super and you will find that the bees have *some* reason to hesitate before starting on this task, and no wonder if some of the work is left undone and not perfect. Of course, if some of the sections are supplied with full sheets of foundation, this gives the bees about 30 square inches of surface to build comb on in each section, and is a great help. The more the bees are aided with their work the more honey they produce, and the beekeeper will be well paid for any extra expense incurred.

My device for coating the inside of sections with wax leaves only a very thin coating on the wood of the section about the width that bees build the comb.

Nothing but pure clean wax is used, not clarified in any way. The wax is applied hot, at about the temperature of boiling water, and penetrates well into the wood and leaves surface non-absorbant, just as the bees prepare the wood of sections before building the comb thereon. This is an incentive to get the bees to anchor the comb firmly to all four sides of the section, reduces the number of "pop holes," renders the surface non-absorbent and induces the bees to fill more of the outer cells, leaves an ideal surface to attach foundation with any style of machine, and the bees build more perfect combs with less rounded edges. Bees accept more readily sections prepared in this manner, the honey grades up better, and the loss from breakage in shipping is reduced to the minimum. Have tried my plan out for two seasons and am well satisfied with results obtained.

La Crosse, Wis.

[Producers of section honey will be interested in Mr. Budd's scheme for painting with wax the inside of section boxes. Just how much of practical value there is in the plan, it is not easy to say. It certainly looks as if a surface of wax upon which to fasten the comb would suit the bees better than one of wood more or less porous. Those who have trouble in getting the bees to fasten the comb to the sides and bottom may find it a paying operation, and even those who do not have such trouble may possibly find the work done a little faster with the waxed surfaces. Of course something depends on the time it takes to apply the wax, and Mr. Budd does not tell us about this, nor how he does it. A fair test of the plan would be had by having a super filled with waxed and unwaxed sections alternating.—C. C. M.]

No. 19.—The Honey-Producing Plants

BY FRANK C. PELLETT.

(*Photographs by the author.*)

THE catalpa tree produces a great profusion of bloom. The blossoms are so large that a bee can readily crawl right in the heart of the flower. However, I do not remember ever having seen a bee on the blossoms of one of the trees on our lawn. From my own observation I could never list the catalpa as a honey-producing tree. It blossoms with us just at the height of the white clover flow when the bees have little inclination to seek other pastures.

The testimony of those who should be competent observers gives an unqualified endorsement of the catalpa as a nectar producer, although I find slight mention of it in our literature. The fact that large areas of these trees are being planted for timber in many places make it of special interest to the beekeeper. The catalpa or Indian bean, *Catalpa speciosa*, is a native of the woodlands of southern Indiana and Tennessee, west to Arkansas. This form, known as the hardy catalpa, is also widely planted in Iowa, Illinois, Kansas, Nebraska and other States. There is another similar species closely resembling it which occurs further south, and is common in the Gulf States.

The leaves are heart-shaped and the blossoms are large, nearly white, and grow in large clusters as shown in Fig. 85. The tree grows very rapidly, furnishing desirable timber for fence posts, telephone poles, railroad ties, etc. In Kansas large areas have been planted by the railroad companies for the purpose of growing ties. Beekeepers situated near such plantings should find the trees of material value.

Atlantic, Iowa.

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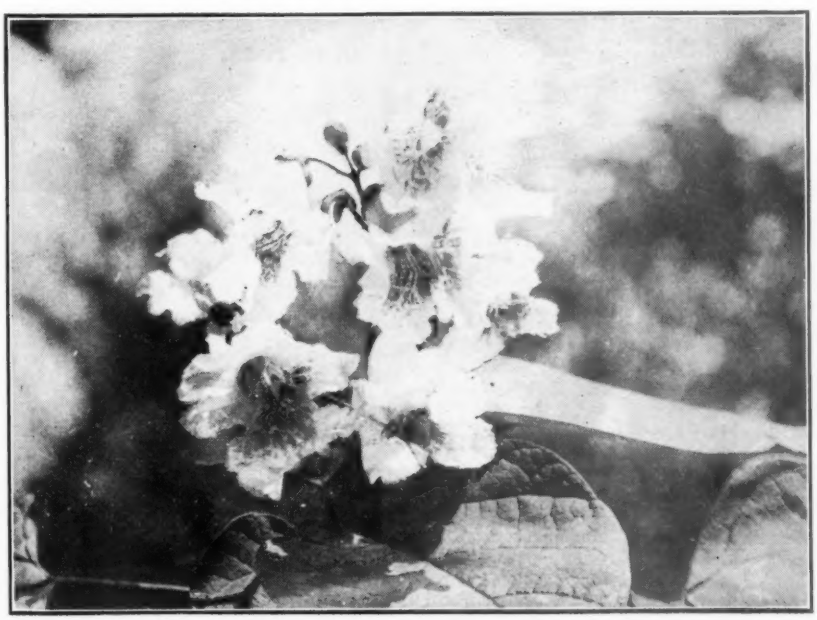

FIG. 85.—CATALPA BLOSSOMS

Vocational Opportunities in Beekeeping

From the Standpoint of Apicultural Instructions

BY BURTON N. GATES.

SOME ONE has said that "beekeeping is the oldest art under the sun." True, but business beekeeping is young. It is, moreover, becoming much diversified yet sub-divided into narrow specialities, as has the fruit industry, within recent years. There is the honey producer; the one producing extracted honey likely does not produce comb honey and *vice versa*. There is the bee-rearer or producer, whose sole aim throughout the season may be to 'make" more bees, the surplus stock which he may sell by the colony, nucleus, pint or pound. Then there is the professional queen-rearer, whose business it is to rear and mate queen-bees for market. Annually thousands and thousands of these are distributed by mail throughout the country and abroad. In some localities there is a tendency toward specialization in wax production from a commercial standpoint, by no means a negligible product. Finally there are the specialists who have become expert in handling the products of beekeepers; in some of these establishments many tons of honey are daily graded, bottled and shipped to market. Massachusetts has her increasing share in all of these.

There is another opportunity for the specially trained. With the growing recognition of the young industry comes the demand from all parts of the country, and even abroad, for those who can teach and investigate or organize and develop the industry of a given locality. In many States beekeepers are requiring of their entomologists or beekeeping specialists, field service in the suppression of brood diseases of bees. One who is merely a beekeeper, without college and specia

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training, can scarcely be expected to meet all the requirements. Massachusetts is a pioneer in the field, for men and assistance.

This outline is already extensive, representing an apicultural income to the country of millions of dollars, the figures of which have never been determined. But beekeeping has an even greater, more important, fundamental and stupendous agricultural aspect than any yet enumerated. It is that inestimable service of the honeybee in seed, vegetable and fruit production, the value of which may never be computed.

This horticultural relationship of beekeeping is of deepest significance wherever peaches, plums, cherries, pears, apples, various berries, certain seeds as the clover seeds and cucurbitaceous vegetables (like the squash, cucumber and melon) are grown.

It may be conjectured that by a fiat or decree, all manner of bees in a locality could be temporarily annihilated. Suppose this occurred when fruit trees are in blossom. What would be the results? Orchardists are willing to prophesy an entire failure in the harvest. At least, there would probably be few well matured vegetables or fruits, berries, plums, pears or apples. Where bees have died out in certain towns the vegetable crops and even fruit crops have materially suffered, owing to the lack of the bee's inestimable service in transporting the male element of the flower, the pollen, so essentially necessary to fertilize many domestic vegetables and fruits. Even though horticulturists till, fertilize, prune, spray, and thin, their harvest may fail unless the bees are sufficient to pollinate the flowers. Beekeeping, therefore, may be considered the root and foundation of successful crop getting.

So particularly dependent are certain horticultural specialists that at least 2000 to 2500 colonies of bees are annually used in the cucumber greenhouses of Massachusetts alone. Within the last few years Massachusetts cranberry growers have found that honeybees assure greater success, in their million dollar enterprise. Similarly field-crop growers, as of melons and cucumbers, are introducing bees on their plantations. Likewise, the commercial orchardists, small fruit growers and the professional seed producers realize that it is most profitable to maintain apiaries.

Amherst, Mass.

Overstocking and the Distance Bees Fly

Also Touching On the Qualifications of a Good Rocky Mountain Location

BY WESLEY FOSTER.

WHEN the Editor of the American Bee Journal asked me to say something on the overstocking of locations in the West, and also something on how far bees fly, I thought the subject, if properly handled, should cover the qualifications of a good bee location. And here it should be said, that many beekeepers who have settled in the West have not been able to judge carefully of the most desirable locations.

Generally speaking, the older an irrigated district becomes, the less certain is the honey crop. Just notice that Colorado has a lower average crop than any of the Rocky Mountain States. The reasons for this are numerous. Alfalfa is cut sooner, because the great cattle ranches are being broken up; dairying is fast being taken up and cow hay is not allowed to stand in the field and bloom.

The methods of farming are improving and there is much less vacant, untilled land to grow up to sweet clover. The establishment of the beet sugar industry has had its effect upon the Arkansas Valley as a honey country in Colorado. Wherever a sugar factory has been built, considerable alfalfa has been plowed up, lessening the available bee pasturage.

Three acres of alfalfa to one colony is the ratio most common where overstocking has not occurred. And I find that where one colony of bees is found for every acre of alfalfa in a given area, that the poor crop and the failures come with an unwelcome frequency.

Sweet clover, acre for acre, is worth three acres of alfalfa, which is not saying sweet clover is worth any more than Mr. Frank Coverdale's estimate of $4.00 an acre. This value of an acre of bloom can never be accurately determined for it varies from year to year.

If sweet clover in abundance is accessible to bees within one-half mile of an apiary, I doubt whether they will go much farther, but I know they will fly across a valley a mile wide to sweet clover pasture, and in a season of drouth, I have known apiaries of mine to store honey in fair quantity (40 pounds surplus to the hive of comb honey) by flying over a dry hill nearly two miles to a well watered alfalfa and sweet clover pasture.

The distance of the flight of bees is pretty well determined in western Colorado, where the orchards cause trouble for the beemen. By removing apiaries two miles, little if any poisoning results. One mile, or 1¼ miles, does no appreciable good.

THE HORSEMINT IS A VALUABLE DESERT FLOWER FOR THE WESTERN BEEMAN

I believe that one mile is the average flight range of working bees in the Rocky Mountain region.

THE DESIRABLE LOCATIONS.

The Rocky Mountain region is one great cattle range, and in the valleys, where the hay is raised for the winter feed of these cattle, desirable locations are had. The large hay ranches are not yet broken up into smaller places in many valleys, so that the cultivation is not so intensive and the alfalfa stands in bloom for a longer time. Many of these valley locations have a very fine spring flow from the mountain bloom and fruit blossoms. Where these conditions prevail are the desirable locations. The bees have opportunity to

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obtain supplies of pollen, and there is in many places almost a continuous flow of more or less importance from March until October.

SWEET CLOVER.

I have harvested sweet clover seed for five years, and have observed conditions here in Colorado for some time.

Sweet clover of the white blossom variety is very hardy and will do well on a greater variety of soils than any other plant that I know of. It is inclined, however, to be patchy in its growth on poor soil—thick here and thin there. Wherever the soil is rich and well watered, a heavy growth occurs, so heavy in fact that the next year little if any will grow on that spot. This condition may be avoided, however, by cutting a hay crop and letting the second crop go to seed. The seed crop will not grow up so rank as to shade the ground and hinder the new seeding for the next year.

The best time to sow seed is in the fall within two weeks of the cutting of the seed crop. The seed germinates almost perfectly if sown before the seed coat becomes very hard. Two years ago I cut some sweet clover for seed and cocked up the clover in large piles. We had a week of rainy weather and practically all the seed germinated in the hay cocks. Green or slightly green seed seems to germinate better than the round, plump, yellow seeds, probably because the seed coat is not so hard.

White sweet clover has yielded for me as high as ten bushels of hulled seed per acre. This was on a very heavy growth, where little clover grew the next year—the ground was so well shaded that the next growth could not get a start.

The average seed production for me has been three bushels. Where one has 40 acres of it, it is impossible to prevent loss from shattering, before and after cutting, while threshing it out either by hand or with a machine.

If weather conditions are just right all the time you are cutting it, little seed may be lost, but extremely dry weather will make it impossible to cut very much without shattering off half or more of the seed. Cutting after a rain or early in the morning, while the dew is still on it, works best.

WILD POPPIES AND LUPINES FURNISH NECTAR AND POLLEN FOR THE BEES—THEY GROW ON UNIRRIGATED LAND

I have threshed my seed on a rack with canvas sides sloping to the center, and a screened frame in the center through which the seed drops into a canvas-lined box holding about 15 bushels. The seed is quite dirty, but can easily be cleaned in a fanning mill and then hulled in a scarifying machine. Running the seed-cleaner and scarifying machine will require three men. First run the seed through the cleaner, then hull the seed and scarify it by running twice through the cleaner again to blow out the hulls. If power is used on both the seed-cleaner and scarifying machine, from one to two tons a day may be easily handled by three men.

EUROPEAN FOULBROOD NOTES.

H. E. Hutchinson, of Paonia, advises transferring once directly upon full sheets of foundation, and saving combs, as he thinks it is not necessary to destroy them. Queens received through the mails proved very susceptible to the disease and what seemed very unsatisfactory was the way these queens were superseded. Strengthening colonies by uniting did not work very well with Mr. Hutchinson. Weak, diseased colonies were closed up completely; colonies of just fair strength were built up by giving hatching brood from colonies that remained healthy through the scourge of European foulbrood. Of 135 colonies, Mr. Huchinson saved 15, most of the 15 not showing the disease. Strong colonies with young queens can be cured of the disease by caging the queens, but colonies not very strong and vigorous should be transferred and requeened.

The difficulty with uniting bees to strengthen them is that, after uniting a lot of them, the result is not a strong colony. Transferring with even colonies of small strength will give good results, where requeening is also done.

Bees, the hives of which are placed too close together when the apiary is diseased show a large percentage of disease.

Boulder, Colo.

Production Costs and How to Figure Them

BY ARTHUR C. MILLER.

WHAT does it cost to produce a pound of honey? Easily asked but not easily answered. Suppose the question is put this way: How much does it cost per year to operate a colony of bees? Just about as hard to answer as the other, isn't it? And yet if you can get at the average cost of operating a colony of bees one year with another, you can always tell what your honey costs you, be it either comb or extracted, and the difference in cost between the two you will find to be so slight that you will not think it worth considering. That statement will cause protests I know, but it will be up to you to prove me wrong.

I have some satisfactory answers to my questions for the conditions of the eastern States, but some factors will be modified by conditions in other sections. I will tell you how to proceed to find out for yourselves.

The first step is to take an inventory of your possessions, of all those things which are essential to the conduct of the business. This will include all hives, supers, extractors and other tools, tanks, buildings used or built specially for the business. If you incidentally use a room in your dwelling or some other building, even though if you did not have it you would be compelled to build for the purpose, the dwelling would not be included in the inventory. On the other hand, if you own an automobile and use it chiefly for your work, even though many miles are run for pleasure, it should be in-

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cluded in the inventory. Next, do *not* include the bees. Why? Are they not the whole thing? What would the supplies be worth for honey production without them? Look at it this way and see if I am not right; see if omitting an estimate of the possible value of the bees does not simplify the figuring of tbe invesment beside being correct.

First, a man buys a colony of bees at say $10. Then he buys hives, supers, etc., from time to time, increases his bees by swarms or by division and ultimately has say 500 colonies. What have the bees cost him? As soon as the number of his colonies was above perhaps 25 they returned enough cash for honey to pay for the time he spent in handling the colonies, in getting the honey. The increase is found to be incidental to the other work, and it would be difficult and useless to determine what part of the time was devoted to it, so we won't try. In other words, it is a necessary incidental of honey production, and we can very properly let it go into the cost of production. Or if you still insist, then tell me how much a swarm of bees *costs* you? Aside from the hives and supers to house it and the working capital to operate it, how much cash does it cause you to expend for it? None.

Here is another way of showing the reason for not including the bees. The 500 colonies and equipment can be sold for how much? Just about the first cost of the equipment, seldom more, often less. The equipment without the bees would bring very little as compared with first cost. In other words, the bees have a *productive* value; they can gather honey or help us sell our equipment for what it is really or nearly worth, but they have no cash value. You may say you can sell the bees "by the pound." Yes, but deduct packages and labor and the reduced price the hives, etc., will bring and see where you stand.

The value to place on your equipment you must determine for yourself. If it is all fine new factory stuff, well made up and painted, that is one thing. If it is box shop or home-made stuff it is another. If it is old and has been long in use, what is its present worth? Whether it is "standard" or not is not of so much consequence. How much did it cost you or how much is it worth? That is, what is the amount of capital you have in equipment?

An estimate based on the factory-made outfit of some big eastern operators is in round figures about $4.50 for each hive with its necessary supers and brood foundation, and 50 cents as its share in the other equipment such as extractors, smokers, tanks, etc., making a total of $5.00. Next comes an item which I have seldom found to be included or considered by beekeepers, and that is working capital. It should be at least equal to the fixed investment of $5.00. In other words, every colony of bees in a commercial apiary should be considered as representing an investment of $10. In this figuring the few odd hives, etc., usually on hand are included in the general estimate. If a considerable portion of one's hives were empty, one would have to figure them in at $5.00, because it is capital tied up, and when they go into service again by being stocked with bees, $5.00 of working capital should be added for each one.

If you have not the working capital you must not figure it, but you should have it. Failure to have sufficient working capital is the cause of trouble in many lines of business besides honey production. To the beekeeper it means trouble in getting needed supplies at the most favorable time and price. It also means the necessity of selling the crop quickly for most any offer. Working capital is needed to pay for labor, insurance, taxes, freight, containers, sections, super foundation, living expenses and most important of all, to carry the business and its owner over a year or two of whole or partial crop failure. The annual per colony charge against working capital at 6 percent is 30 cents. The loss to the operator who does not have working capital is quite apt to be several times 30 cents, so bear in mind that proper working capital reduces cost.

Having found the amount of the investment the next step is to determine the operating costs. To figure the expense of conducting the business the following items are to be included: interest on the investment, insurance, taxes, labor, owner's salary, and depreciation and upkeep. The owner should charge the business for his services at least as much as he could earn in any other gainful occupation in which he is skilled. If all or a major part of his time is devoted to bees, this is easy to figure, but if they take only a minor part of his time (as a side line) it is more difficult, still a satisfactory estimate can be arrived at by a little pains. The business should only be charged with what he is worth, what he can earn in some other business in which he is skilled. All returns over that and the other charges is "profit" on the investment.

The proportion to charge to the sundry items of expense is estimated as follows: Interest, 6 percent; labor, 10 percent; depreciation and upkeep, 10 percent; insurance and taxes, 1½ percent; total, 27½ percent. Here I have only figured under labor (at 50 cents an hour) the amount devoted to the bees, in getting ready for and during the harvest, packing the crop, and closing down for the season. The owner's salary for the rest of the year, if he uses that time for no other gainful work, must be added.

By this figuring you will find that you must get $2.75 (27½ percent on $10) from each colony of bees just to cover running expenses. On an average annual per colony yield of 50 pounds, this makes the cost 5½ cents per pound. Charging 10 percent for "upkeep and depreciation" against the working capital (cash) is not strictly correct, but as I have omitted specific allowances for loss by "bad debts" and sundry other leaks which are so easy to forget or overlook, and as the beekeeper's outfit deteriorates so much more rapidly than things under cover and having constant care, on consideration I decided that charging 10 percent against the whole capital would more nearly represent the true conditions and at the same time simplify the subject for the beekeepers.

The specialist in order to keep costs down must make his business big enough so it can carry the expenses of his idle time without adding too much to the cost of operation, per colony. As a rough illustration: The 10 percent charged for labor (or $1.00 per colony) covers only time devoted to the business. If the man does all the work himself, and has 500 colonies, he gets $500 for his labor. He is idle the rest of the year and needs, and in some other occupation could earn, in a year, $1500, therefore he must charge for cost just $1000 more or $2.00 per hive, making the labor item 30 percent instead of 10 percent. On a 50 pound average yield it means increasing the cost of the honey just 4 cents per pound, or, instead of the 5½ cent cost prices as given elsewhere in this article, the cost rises to 9½ cents. Obviously that man must keep more bees, or raise his average per colony yield, or do both, if he would reduce the cost of his honey.

Operative costs will be pretty much the same one year with another unless disease breaks out or some other exceptional or abnormal condition arises. After keeping records for a few years you can determine with fair accuracy your average annual per colony cost. Then determine your average per colony yield over a period of years and you can easily figure the average cost of honey per pound to you. In exceptionally good years, those of heavy yields, the per pound cost drops, but the next year may be one of failure, so you must use *average* to figure on.

The figures I have given of cost per pound are tentative only. We should have returns from many persons and many places before we accept any figures as exact. The amount of capital per colony will vary, the average annual yield per colony will vary, the time devoted to each colony will also vary with different individuals. The rate of charge for labor will be debatable, but until a better figure is found, 50 cents an hour will do very well, provided we all use it. This rate is for the owner, not for hired labor. The interest rate may be higher in some sections. The rate for depreciation and upkeep I believe will be found about right.

Those with whom I have discussed the subject lean towards the belief that my figures of cost are too low, and I shall not be surprised if that proves to be true. Now, go to it and tell us what your figures are.

Have I taken off some of the glamor of the business? Have I given you a bad quarter hour? Console yourself with the fact that in your misery you have much company. Scrutiny of costs is going on in many lines as never before, and we must know ours. Get busy.

Providence, R. I.

Production Costs—How to Figure Them

BY THE EDITOR.

WHAT does it cost to produce a pound of honey? The answer depends upon so many things that every man must figure for himself.

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How much did your apiary cost you? If you have purchased two or three hives of bees and have made your increase from these, the apiary has cost you the value of the material, hives, etc., and the labor spent by you in producing the increase. While you have produced increase from your bees, you have secured but little honey, for intensive increase of colonies is always done at the expense of surplus crop. However, it should not be difficult to figure what your colonies have cost you, if you take all these matters in consideration.

After your apiary is established, the cost of honey will be represented by the interest on the amount invested in bees, the depreciation, the rental of the ground, the interest and wear and tear on the building which is usually very insignificant and, above all, the labor. What your time is worth should determine the cost of production.

If you are in a good honey-producing region, where crops are almost uniform, the result will prove profitable. As you must take the average of one season with another, in order to figure costs, the less crops you have the greater the cost of production. If you are trying to keep bees for a living, you must therefore locate in a favorable spot.

If beekeeping is for you a side issue and you give to them only your spare moments, you can afford to charge to this business a lower price per hour or per day than you would otherwise, for the moments thus employed would be otherwise lost as far as profits are concerned, and perhaps the healthfulness of beekeeping is a benefit to you, especially if you are a person of sedentary occupations otherwise.

The number of colonies you keep in each apiary will have much to do with the question of profits. If you have only 50 colonies in an apiary that could yield as much per colony if there were double that number, you will be at a disadvantage, since you could probably look after a greater number at each trip or at each visit.

Your method of beekeeping will have much to do with costs. Numerous manipulations must be followed by greater advantages in results or the labor eats up the profits. As a rule, the simpler methods are the more profitable. But a well selected breed of honey-producers, convenient implements, and well made uniform hives are requisites *sine qua non.*

The difference in cost between comb and extracted honey will be found important. The amount of labor required, the amount of swarming caused and the cost of equipment have to be taken in consideration. The sections and foundation used in the production of comb honey must be reckoned, since they are each year to be replaced, while the combs supplied to the colonies run for extracted honey are retained from year to year and are part of the capital on which only interest rates and sinking fund are figured.

The cost of running an apiary in a season of heavy crop is greater than that of a minimum crop, for in the latter case the number of manipulations is reduced. But in a very unfavorable season, when bees have to be fed at different times, not only must we add the cost of the food given, but we will find our labor considerably increased over that of the indifferent season.

The last thing for us to do in figuring costs is to take the average of a number of seasons. Good bookkeeping is required. But the beekeeper is often like the average farmer. Beekeeping and bookkeeping are not often found together. Yet as the cultivation of bees is becoming rapidly a specialized pursuit, bookkeeping in beekeeping will be oftener connected in the future.

Painting Foundation With Melted Wax

BY J. E. HAND.

ON page 164, is an interesting article on painting foundation with melted wax. In my opinion, the efficacy of this method hinges on several contingencies: First, will it supersede wiring? Second, is foundation heavier than light brood advisable? Third, is it advisable to have more wax in section foundation than is contained in the thin grade? Since these questions cannot well be answered in the affirmative, it would seem that painting foundation is of doubtful expediency, but there are two more witnesses to be examined. 1. Do bees accept painted foundation enough more readily to pay for painting? I have a suspicion that this question will be answered by some in the affirmative, but with a strong force of bees and a good flow of nectar, involuntary wax secretion will begin and abundance of natural wax provided, which would not be utilized with painted foundation; therefore, it is not yet clear that painting is profitable.

But there is still another witness to be heard from, "Is wax secretion a voluntary function, or is it an involuntary process? In my opinion, based on many years of observation, wax secretion is an involuntary process over which bees have no control. Under certain conditions bees cannot keep from secreting wax, and the conditions are: First, a moderate harvest when considerable nectar is digested to make honey; second, any contingency that would cause bees to retain honey in the sac or stomach for a considerable time, as in shipping long distances under stress of excitement. Molding wax into comb is evidently an innate voluntary habit, but I cannot conceive of a condition under which bees voluntarily secrete wax. It is, therefore, apparent that considerable wax is wasted when extracted honey is produced with drawn combs. If these deductions are correct, I prefer to sell my surplus wax, and get a lot more by having a few combs drawn in every extracting super, they cost nothing, and are valuable assets, like money in the bank. Personally, I regard wax as an article of commerce just the same as honey, therefore, am loth to waste it unnecessarily.

Birmingham, Ohio.

[It is not at all apparent to us that wax is wasted when extracting combs are supplied in the supers. There are

THE DESERT FLORA IS PROFUSE IN COLORADO NEAR THE FOOTHILLS

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always a few spots where wax is needed, to repair or lengthen cells, and we have never seen wax thrown away in greater quantity than is thrown away accidentally in a hive where the swarm has to build all the combs. What do our extracted-honey producers say about this?

Bees voluntarily secrete wax when a gap is made accidentally in the middle of the brood-chamber. At such a time they also use particles of wax taken from other combs, with very evident aim at economy, and the comb then built often has more or less the appearance of old comb. To witness this peculiarity it is only necessary to remove a comb from the center of a strong and wealthy colony in early spring, replacing it with a frame containing only a narrow guide, or starter. —EDITOR.]

Advertisng Honey

BY A. F. BONNEY.

FROM observations on Mr. Gano's article in the March American Bee Journal, I am fully convinced that the solution of the advertising problem for honey producers is in personal, local, and individual advertising. I do not believe our product, honey, can be advertised profitably in violation of established rules.

With all due deference to Mr. Gano's position in the advertising world, I am compelled to differ with him from start to finish. He is ignorant of both the honey and orange business. As proof, he says in his article (March, 1916) that he could not tell his wife whether the bees put the honey in the wood frame or if man put it in, and lays great stress on the claim that with only advertising to help them the orange growers expected to "double the orange shipment from California in the next five years." Were he posted, he would have known the following sad, sad tale:

WASHINGTON, D. C., March 6.—A tariff on citrus fruit was suggested to President Wilson today by Representatives Kettner, Raker, Randall and Church of California, who told him that citrus fruit growers in their State were losing money because growers in Italy and Sicily were dumping their products in the United States as a result of the war.

I have before me a letter from California, which says in part:

"There are approximately 12,000 citrus fruit growers in the State of California. The annual crop amounts to between 40,000 and 50,000 cars, and the total value of the crop ranges from $15,000,000 to $25,000,000 f. o. b. California."

It is from Mr. Arbuthnot, secretary and manager of the LaVerne Orange and Lemon Growers' Association. As an advertising proposition there can be no comparison between the citrus fruits and honey because the production of oranges in the United States is practically limited to Florida and the south half of California. Honey is produced in every State in the Union, in Canada and Alaska. There are 12,000 orange growers, and they nearly all belong to their association.

Dr. C. C. Miller once guessed for me that there were in the United States about 200 persons who depended wholly upon honey for a living. As to the number who produce as much as 1000 pounds ($100 worth) annually, it is a wild guess. The number who belong to any organization pertaining to apiculture is almost negligible. The citrus fruit growers of California spend $350,000 annually to sell $25,000,000 worth of oranges.

How much could the honey producers of the United States be persuaded to spend to sell $25,000,000 to $50,000,000 worth of honey? $10,000? I doubt it, judging from my own case, for with $25 I can do more for myself than any advertising firm can. I can sell more honey and get better prices.

Packing oranges calls for one box which is made of the cheapest native lumber for each 100, 150 or 200 oranges, according to size. The quality of Sunkist oranges is supposed to be the same, but that is an ad writer's dream. Honey calls for expensive containers from 6-ounce glass jars to 60-pound tin cans. Comb honey particularly is expensive to produce and ship, in time, sections, foundation and shipping cases. Orange producers have practically no local market; honey producers have.

In regard to the Orange Producers' Association saving their members on supplies, they only have to buy "lumber and nails." Cheap Mexican labor does the rest.

The honey season is long.

Oranges smell better than they taste. Honey tastes better than it smells.

Oranges may be eaten out of hand at any time and place.

Honey is practically restricted to the table.

Oranges require no special containers.

Honey must have tumblers, cases or cans.

The California people have made a name for oranges, navels, Sunkist. As to these oranges being better than other navels I have my doubts, for I have taken the tissue paper wrappers from some mighty poor fruit, but oranges are so similar that they may be called "all alike" and not miss it much.

Honey is everything from the finest Bonney honey to bitter and even poisonous kinds; therefore, it will be practically impossible to have a name of a National advertising character. Some individual may invent a name and even copyright it as "Airline" honey, or Mr. Mason's "Sweet Clover Brand," Mr. Roth's "Quality Honey," or Mr. Hassinger's "Bee Line Honey," as they are doing, which is my idea of *personal, local* advertising.

This article is intended to help. There is, I know, a way to advertise honey nationally. Just get together $100,000 and turn it over to some big advertising firm and let them tell the people of the world that honey is a mighty good thing to eat. That is all there is to it. Will it pay? I—er—I don't know, nor does the big advertising firm. Millions of dollars are sunk each year in the United States in advertising schemes.

The trouble with beekeepers is that not 10 percent of them care to advertise, and of that number not one in a hundred can write an ad, but there is a rule to help them, and that is "boil it down." Do not tell your customers that honey, the most delightful sweet in the world, is good for boils, colds and constipation. If you can afford it, use "Facts About Honey," with which to keep in touch with your customers, otherwise use a postal card with your name, address and price list, and send these to bankers, farmers and others within a reasonable distance of your home. Do this *every year* if you would succeed.

Buck Grove, Iowa.

APIARY OF W. C. AXELTON, AT GRAETTINGER, IOWA, WHICH PAYS ITS OWNER AN AVERAGE OF TEN DOLLARS PER COLONY PER YEAR

American Bee Journal

Advertising—A Reply to Bonney's Criticism

BY FRANK C. PELLETT.

PRODUCING an article is one thing, selling it is quite another. Few men are efficient at both ends of the same business. The fact that expert advertising men draw larger salaries than in any other department of commercial activity proves in itself that the game is not an easy one.

When the Editor asked Mr. Gano for some principles that would assist in getting desirable publicity for honey he did not ask for information concerning its production. Fifty years of producing honey for a livelihood equipped the editor to handle that subject himself. Sometimes it is an advantage for a man who would undertake the selling campaign for a commodity to know nothing of it in the beginning. He very naturally begins to ask questions, and the thing that he wants to find out is what the general public wants to know also. The fact that Mr. Gano did not know whether the bees put the honey into the section

APIARY OF H. E. ROTH AT STRAWBERRY POINT, IOWA. 100 POUNDS PER COLONY IN 1915

proves his point that the beekeepers have not been alive to the benefits of well directed publicity. If honey and its process of preparation for use was as well known to the public as is butter, more of it would be consumed by men in that class in preference to inferior substitutes.

The fact that we beekeepers some times find it hard to dispose of a crop that aggregates only about a pound per capita for the population of the United States, proves in itself that we are unfamiliar with the rules of advertising as practiced in the business world today. There is no reason why the public will not consume ten times the amount of honey that now goes to market if our product is properly placed before the readers of our newspapers and magazines. The average merchant wastes half or more of his advertising appropriation in ill-advised copy or poor mediums. The advertising agents make a study of advertising and get results for their patrons at less cost. Otherwise they could not exist. Very few successful business men will risk placing their own advertising. The editor wishing to secure the best possible advice for his readers appealed to one of the largest advertising concerns in the world. They handle advertising accounts of every conceivable kind from oranges to automobiles.

In the nature of things they cannot know the details of the production of all the articles, but they do know how to sell them. When the Editor sent the writer to Chicago to see what he could learn about the honey markets and to write the article which appeared in the June number, he visited this advertising agency. To his surprise he found more people employed in their offices than would equal the entire population of a half dozen places like Dr. Bonney's town. When the Doctor says that all the supplies the orange growers have to buy are lumber and nails, he makes it evident that he knows less about oranges than he accuses Mr. Gano of knowing. How about cultivators, spraying machinery, etc.? Knowing so little about the production of oranges he is hardly competent to attempt a comparison. He would likely be surprised to learn the size of the orange growers' supply bills.

Bonney writes from the standpoint of the small producer who has no competition in the local market. Mr. Gano writes from the standpoint of a business man familiar with the congestion of the large markets, and with the general methods of marketing. Everybody who knows anything of the conditions admits that the orange growers are vastly more prosperous since their organization and advertising. Bonney has failed to show that the same principles would not apply to honey producers. Butter *is* advertised nationally. If the Doctor was a careful reader of the magazine advertising pages he would long ago have seen the large advertisements of Meadow Gold Butter. Not only this, but several dairy organizations are constantly on the watch to guard the dairy interests against unjust competition in any quarter. Hundreds of publications carry their advertising calling particular attention to the merits to the output of their special breed of cattle, as the Holstein or Jersey clubs.

A large number of lumbermen who are engaged in sawing cypress timber contribute to the fund that pays for the advertising of cypress lumber that appears in so many high class publications. While any member may not be able to trace a special sale to his own yards as a result of this publicity, he knows that the extent to which the public comes to realize the special merits of cypress lumber for the purposes to which it is best adapted will benefit him personally. Lumbermen are doing business on a business basis, and are prosperous as a result.

While Dr. Bonney's methods may succeed in disposing of a small crop in a local market they are not applicable to the industry as a whole, and cannot be used to make a general market for honey as a commodity in a national way.

Under present day conditions no industry can thrive greatly without general cooperation among the producers. When the beekeepers unite and fight together instead of fighting each other then will honey production become a profitable industry. The Doctor's tendency to belittle the business is to be regretted. His statement that less than 200 persons are largely dependent upon honey production is erroneous. More than that number could be found in many limited localities.

Atlantic, Iowa.

Does the Female Osmia Decide the Sex of the Egg?

BY JOHN H. LOVELL.

IT has been commonly believed that the queen honeybee can lay drone or worker eggs at will. The observations and experiments of Fabre with several solitary bees belonging to the genus Osmia are in this connection of much interest. Several species of this genus build their cells in a continuous series in the hollow stems of brambles, from which the pith has been excavated, or in the old deserted burrows of other solitary bees. When the tunnels are sufficiently long and large to contain a complete laying of eggs, a series of cells containing female eggs is first built, and then a series of cells with male eggs. If, however, the tunnel is short, and it is necessary to break up the laying of eggs and divide it among several burrows, then in each case female eggs are laid first, followed by male eggs, for instance, if the tunnel is only long enough to contain two cells, the bottom one contains a female egg and the upper one a male egg.

The males of Osmia are much smaller than the females, and the cells in which they live in the larval state are consequently smaller and contain a smaller stock of provisions than the cells of the females. The mother Osmia must, therefore, instinctively be conscious that she is about to lay an egg correlated with the small cell and the little

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store of food; that is, so far as this discussion is concerned she knows beforehand the sex of the egg she is about to lay. Not infrequently the same tunnel or burrow is used for several seasons by species of Osmia. Here the female bee has no power to alter the succession of the cells, and she invariably lays female eggs in the larger cells and male eggs in the smaller cells. If, for example, the mason bee has at her disposal five cells, three large and two small, in the large cells she puts females and in the small cells males. It is thus impossible, says Fabre, that there should be an invariable succession of the eggs.

Fabre induced many mason-bees to make use of glass tubes, instead of hollow reeds and brambles, in which the method of procedure could be more easily followe l. When the glass tubes were of normal size each series of cells, whether complete or incomplete, began with females and ended with males. Sometimes females were more abundant, at other times males; if the tube was reduced to the exact length of two cells the bottom one was a female, the upper a male. If the mother Osmia can lay an egg of either sex, as she pleases, the question arises, may it not be possible to induce her to reverse the usual order and lay male eggs first. For this purpose Fabre employed two glass tubes of very different diameters set end to end. The black tubes or cylinders were too small to contain female cells, and if used at all must contain males. Now what happened? The mothers laid male eggs in the small rear tubes, the exact converse of their way of proceeding under normal conditions. When they came to the larger front tubes they at once laid female eggs topping off with males as usual.

The nests of a species of Chalicodoma, are round balls of mud varying from the size of a walnut to that of an apple. A part of the cells are deep, a part shallow. The female of Osmia tridentata often uses them, laying females in the deep cells and males in the shallow ones. Fabre scraped off the mud from the outside of one these nests so that it contained 12 shallow cells and 2 deep cells. In all the former the mother Osmia laid male eggs, and in the latter female. The following year the experiment was repeated with a nest of 15 cells; but this time all the cells were scraped down until they were shallow. Every cell was occupied by males, all the offspring of one mother. "He would indeed be difficult to please," says Fabre, "who would not bow before the results of these two experiments."

A single additional experiment may be briefly described. Fabre also gave his species of Osmia empty shells of the garden snail so plugged with mud in the widest part that there was hardly space for any except male cells. One of these snail-shells contained 25 males and only one female. It is obvious, says Fabre, that the Osmia is able to reverse the order of her laying and start with more or less long series of males before producing females.

"So as to be able to give each larva the amount of space and food that suits it according as it is male or female, the mother can choose the sex of the egg which she is about to lay. To meet the conditions of building, which is often the work of another or else a natural retreat that admits of little or no alteration, she lays either a male egg or a female egg as she pleases. The distribution of the sexes depends upon herself. Should circumstances require it, the order of the laying can be reversed and begin with males; lastly, the entire laying can contain only one sex."

(An extended description of Fabre's observations will be found in "Bramble Bees.")

Waldoboro, Maine.

The Sectional Hive

BY F. GREINER.

IT is not to be wondered at that the readers of our bee journals receive the impression that the sectional hive has gone out of use, for we do not find anything written on the subject in recent years. I do not know whether I am the only beekeeper who uses them at this time, but I think there are a few, some quite extensive beekeepers, who use nothing else. However, the fact cannot be denied that this style of hive has not gained in popularity.

The original sectional hive was called the Heddon hive from its inventor. Our lamented friend, Hutchinson favored it at one time. A few of us in New York State tried it but discarded it as not practical. I was among them; I was glad when the colony in this hive died and I did not have to bother with it any longer. We had almost forgotten the Heddon reversible sectional hive when Mr. Hand came out with his shallow brood-chambers with their close fitting closed end frames. As the second inventor explained the management of these hives, also Mr. Taylor a similar hive, we became convinced that the trouble was with us and not with the hive, and we made another attempt using these hives in our yards. We were not only successful this time but it afforded us pleasure.

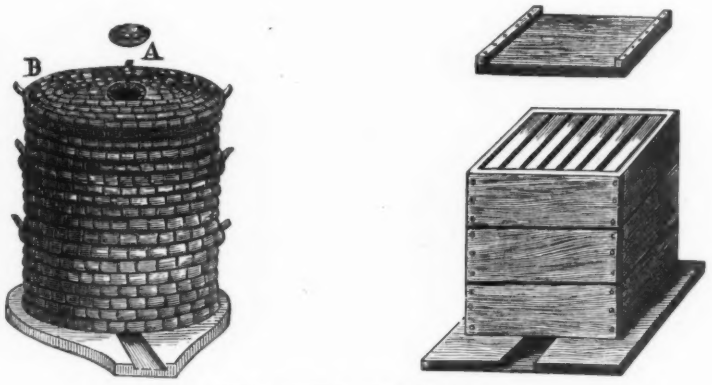
We built more and more of them, and today I have half of my bees in these little sectional brood-chambers, and I am satisfied that I can run more colonies when they are in sectional hives than when in standard hives. In order to get along at all with them one must get away from the idea of handling frames singly. These hives were not built with that intention; they were built with the idea of handling the frames in full sets. It is a matter of handling hives, not frames. If your management is such that you cannot avoid handling frames you will never like a closed-end tight-fitting sectional frame hive. In the eastern portion of New York State we have beekeepers of note who use a sectional hive with loose hanging frames. It is liked very much by these honey producers; they certainly make a success of it; I have a few such hives in use, but I prefer the closed-end style Hand or Heddon pattern.

When our management demands the manipulation of brood-frames singly, the larger the frames the better and quicker we will get along with our work. The frames of the sectional hives are not intended to be manipulated singly; they must of necessity be very shallow, so that we can tell what they contain by taking a look at them from the top or bottom. The shallower they are, the easier we can drive or shake the bees out. There are no hiding places between and around the frames except the straight long bee-spaces between the combs, and those are easily cleared of bees when necessary.

It may not be so easy to find the queens in this type of a hive, but we do not have to see the queens every time we visit our bees. During the spring months we have no difficulty to hunt out queens, later in the season we simply don't.

The bee-spaces between the shallow brood-chambers may be considered an objectionable feature, but they are not; they are an advantage in several ways; you will find it so when you get to using the hive.

Naples, N. Y.



OLD STYLE EKE HIVES

[Sectional hives, before the time of movable frames, were known under the names of "ekes," "nadirs," or in French as "hausses." Hamet, in his "Cours d'Apiculture," 1859, recommends those hives above all others. They consisted of shallow stories, all alike, with slats at the top to which the combs were attached. In cases of necessity, the combs could be loosened from the ends and lifted out. Dzierzon's movable-comb

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hives were built similarly but were not shallow, neither did they have a movable ceiling.

A few beekeepers, like Friend Greiner, use exclusively shallow sectional brood-chambers. Perhaps the most successful man with these hives is our Texas friend, Louis H. Scholl, who claims that at least 10 percent more honey can be produced with his method and his shallow brood-chambers than in any other way. The management has much to do with the success.—EDITOR.]

Serious Effect of Stings

BY W. S. PANGBURN.

IN the American Bee Journal for November, Mr. Frank C. Pellett describes the serious illness of his wife, caused from being stung on the neck by a bee. Two cases somewhat similar occurred in this neighborhood a number of years ago.

In the first case, the man had kept bees in a small way all his life until a few years previous to the incident. He had purchased two swarms of bees at a sale in the fall, and the next spring, while working with them, he received a sting on top of the head. In a very short time he commenced to get sick, body and limbs swelled; his fingers swelled until they stuck straight out, and his ears were about twice their natural size. His eyes were bloodshot, and his throat and tongue swelled until he could hardly breathe, and his body finally got spotted all over. He told me that he never suffered so in his life.

The other was a man who was helping me in haying, and on the last load that evening he got stung by a bumblebee on the calf of his leg. Nothing was thought of it until after the load was off and we were in for supper, when he was taken with a terrible itching sensation. His face, hands and arms resembled red flannel in color, and the swelling was similar to the first case only not so bad. I never saw a man get in such a condition in so short a time. I did not know what to do, for at that time I had had very little experience with stings. I wanted to take him home, but he said no, that he could walk. He lived just one mile from us. He did not seem sick, as he was joking and laughing all the time. On the road home he stopped at a neighbor's about 80 rods from our house and told them the circumstance, and the lady brought out a pan of sweet milk, and told him to bathe his hands and face with that, which he did. It relieved him and the itching stopped almost immediately.

It is very evident that some people cannot stand the poison from the sting of a bee, no matter where it is inflicted. I know people who were severely stung in childhood and who, if they receive a single sting now, suffer the same effects as with the first severe stinging.

In the footnote to Mr. Pellett's letter Mr. Dadant says: "It looks as if, in the above mentioned case, the poison had reached an artery or a vein so as to get into the circulation instantaneously. Luckily, such instances are rare." I would like to ask Mr. Dadant if he thinks the same thing would occur with the veteran beekeeper who had stood the "shot and shell" for years." If that was the case, we would hear of it more frequently. Very few persons who keep bees for any length of time get along without getting a severe stinging at some stage of the game, and we all know the bees are not at all particular *where*. In the writer's opinion *it is impossible to work with bees and avoid all stings*, as some brag of doing. The beekeeper who cannot stand a few stings without getting the effects described is treading on dangerous ground.

Personally, I had rather be stung by a bee than bit by a mosquito. But, then, I think I am inoculated. In the past five years I have been letting the bees treat me for rheumatism; the beauty of it is one can take a treatment at any time and it doesn't cost anything. As to results, I have nothing to say except I do not care to express myself in the presence of Dr. Bonney.

Center Junction, Iowa.

[I believe Mr. Pangburn answers his own question, when he says "I am inoculated." As Mr. Langstroth said: "It may be some comfort to novices to know that the poison will produce less and less effect upon their system. Old beekeepers, like Mithridates, appear almost to thrive upon poison itself."—EDITOR.]

MISCELLANEOUS NEWS ITEMS

New England Meetings.—When this number of the Bee Journal reaches the subscribers, the Editor will be in New England, and neighboring States, making his proposed visit organized through the kindly efforts of Prof. Burton N. Gates, of Amherst, Mass.

Up to the present time, July 18, the following meetings have been planned:

July 29—Massachusetts Society of Beekeepers, Glenwood Farm, summer home of Frank R. Swert, West Mansfield, Mass.

July 31—New Jersey meeting, Mount Holly, N. J.

August 1—New Jersey meeting at Elizabeth, N. J.

August 3 and 4—Connecticut meeting at the Agricultural College, Storrs, Conn.

August 5—Worcester County Beekeepers and Eastern Massachusetts Society at W. E. Parker's, West Boylston, Mass.

August 10 — Berkshire Beekeepers' Association at Pittsfield, Mass., at Hon. W. Murray Crane's estate. A three-minute walk from trolley. If it rains, meeting will be held in Y. M. C. A. Hall.

August 11—Eastern New York, place not yet named.

August 12—Adirondack Beekeepers' Association at Moreau Farm, one mile from the station, H. E. Gray, Fort Edward, N. Y.

August 14—Vermont Beepeepers' Association, Addison House, Middlebury, Vermont.

Correspondence for the Editor should be addressed in care of Prof. Gates, at Amherst, Mass.

A delightful time is anticipated.

The Western New York Honey-Producers' Association will hold its annual basket picnic and field meeting on Saturday Aug. 12, at the apiary of Roy Wisterman, at Dysinger's Corners, N. Y., which is located on the Lockport-Akron road, six miles southeast of Lockport, or 10 miles northwest of Akron, or four miles south of Gasport, N. Y. A good program is in preparation, and a most enjoyable time is looked for. Bring your friends, your veil, and don't forget the basket lunch. All beekeepers welcome.

WILLIAM F. VOLLMER, *Sec.*

A Busy Spot.—The Dadant family has produced during this clover crop, more honey than it ever did. We have just put up the 125th barrel of clover honey.

Our largest day's extracting yielded 5700 pounds, and we did not use a power extractor either.

Correspondence. — We are receiving the American Bee Journal regularly, the May number having arrived yesterday, and I thank you for your kindness. The blooming season has been very fine so far. The black locust (*Robinia Pseudo-acacia*) has just closed its blooming, which has been hurried a little early by a storm. We had ample fruit bloom and kale. Now the tulip trees (*Liriodendron tulipifera*) are about to bloom, and we expect the sweetly perfumed lindens to open next week.

My father spends much time with his bees. He had but few swarms this year, so we are expecting a good honey crop.

With my thanks I send my compliments and those of my father.

[MISS] VALENTINE VISCONTI.

Cernusco, Province of Milan, Italy.

Honey Crops in Russia.— According to the Russian Beekeepers' Review, a Mr. Kormiljcew harvested from one colony 688 pounds of extracted honey. At the close of the crop the colony had a working force with a weight of 37 pounds. From this he tries to show that the crop of any one colony is in direct proportion to the working force, such proportion being one-half of the

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square of the weight of the working force. In other words, a colony with a weight of five pounds would produce 12½ pounds of honey, one of 10 pounds would harvest 50 pounds of honey, while one of 40 pounds should produce 800 pounds of honey annually. At this rate, if a person could only have two or three 80 pound colonies in his yard, he would be pretty well fixed for honey on his table during the winter.

—Translated by P. Schaffhauser.

Advertising in Colorado.—A recent letter from Mr. Rauchfuss, of the Colorado Honey-Producers' Association, says that at their field meet in Ft. Collins in June, there were over 120 people in attendance. A record breaker. In this letter he also enclosed a little slip which they get out with all correspondence and which reads as follows:

HAVE YOU EVER SWEETENED BERRIES WITH HONEY?

IF YOU HAVE NOT, TRY IT TODAY

IT IS DELICIOUS

In addition to sending these out himself, Mr. Rauchfuss is asking berry growers to include some of the slips in all crates sent out. It not only helps the sale of honey but it increases the sale of berries. Try it in your locality.

Kansas State Fair Premiums.—The State Fair of Kansas will be held at Topeka Sept. 11 to 16, with Mr. J. W. Priddy of that city as superintendent of the Bee and Honey Department. The amount of premiums offered in this department amounts to about $150. Kansas beekeepers are urged to enter in the competitive exhibit for the prizes. Write to Mr. Priddy today for a list of exhibits with entrance blanks, etc.

It will not only give you an outing and probably get you some prize money, but above all it will be the means of disposing of a quantity of your honey, and of making many new customers.

Another Sweet Clover Bulletin.—One of the shortest and still among the most complete booklets issued on sweet clover is that issued by W. E. Watkins, County Agent at Iola, Kan. The bulletin was issued in conjunction with the Kansas State Agricultural College and the United States Department of Agriculture.

It contains 16 pages of very valuable information on sweet clover: the soil required, manner of treatment of same, seed and seeding, and in fact almost all requirements in concise form. The booklet is illustrated with ten cuts, showing the relative value of different methods of treatment, etc.

Announcement—Colorado Honey-Producers' Association Protective Club.—At the annual meeting of the Colorado Honey Producers' Association, Dec. 29-30, 1915, a protective committee was appointed to work out plans for an organization to aid in protecting member's apiaries from molestation by thieves. Twenty-two dollars were paid in by 17 charter members.

The committee appointed to prosecute this work consists of Herman Rauchfuss, Chairman, Englewood; Wesley Foster, Secretary - Treasurer, Boulder; B. F. Hastings, Arvada.

The admission fee of $1.00 is to be paid upon joining the club.

An assessment fee of 2 cents per colony, payable in advance, must be paid by each member the first year. Later assessments to be levied when the funds in the treasury fall below $100. Such assessments, however, shall not raise the fund in the treasury to exceed $150.

Funds of the club are to be spent as follows: Printing reward cards (to be furnished members to be posted about their apiaries), stationery and postage, necessary expenses, as allowed by the committee. Rewards.

Cases of persistent molestation to be reported to the committee for special action.

Claims for reward and all bills against the club, to be passed upon by the committee before payment (no reward to be paid to the plaintiff in any case.)

Members are to notify the secretary of the club or local representative at once, when or where thieving or molestation occurs.

The reward cards will be furnished members when joining.

The following is the text for the cards:

FIFTY DOLLARS REWARD.

$10 to be paid for information leading to the arrest, and $40 additional for conviction of any one tampering with or molesting this apiary.

Inform C. H. P. A. Protective Club, 1424 Market Street, Denver, Colo, or ———, Local Representative.

This announcement merely gives an outline of the purpose of the club. By-laws for the government of the organization will be submitted to the members for approval at a later date.

Queenbees Supplied at Rate of 25 Daily.—The first consignment of Italian queens has been sent out from the apiaries of the Wisconsin College of Agriculture to beekeepers in the State who had ordered them.

If the weather conditions are favorable it is expected that from half a dozen to 25 queens a day will shipped throughout the summer. The work has been made possible through the cooperation of the State Beekeepers' Association.—*Press Bulletin.*

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

A Beginner

I have been thinking of going into the bee business for some time, but every one discourages me. My husband does not say much one way or the other, and I am anxious for some good honest advice. It is necessary for me to do something to help, as my husband's health is poor. I cannot afford to spend the money for bees and bee supplies unless there is some prospect of getting something out of it.

We do not know anything about bees and would have to learn. Do you honestly think a woman without any experience can succeed in the bee business after a few years' trial? They say there is so much disease among bees nowadays that there is nothing to be made by an inexperienced person.

[MRS.] IDA GUMMONS.

Fair Haven, N. Y.

Whether a woman—or a man either—who has at present no knowledge of beekeeping, can make a success of it. is a question very difficult to answer, Out of a hundred such women, taken at random, the likelihood is that by far the majority would do well to let beekeeping alone. Not every one has a liking for the business, and without such liking it is practically certain to be a failure. And until you actually make the trial there is no way to tell whether you like beekeeping or not.

Because you are a woman is a matter that hardly merits attention. With the same strength as a man, a woman should make just as good a beekeeper—perhaps better. And there are not a great many times when the average woman needs extra strength, and then she can get the help of a boy or a man.

The matter of diseases in bees is not so important as you might think. Many experienced beekeepers have as yet had no experience with a serious disease, such as foulbrood, and you can learn about it as well as they.

If your idea is to begin at once with enough bees to make a considerable part of your living, dismiss the thought. You're practically sure to fail. But if you think worth while to try it, begin with not more than two colonies, and

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If you succeed you can easily get more. If you fail, the loss is not heavy.

So you see the only way to learn whether you can be a successful bee-keeper is to try it and see. But try it easy.

Pollen from Dried Wood

Thanks for your suggestion about having the small frames made to order. I have been trying to plan a way of dividing a 10-frame hive into three parts and using that if I cannot get the small hives this year. I very successfully introduced the great number of two queens by what I called "Dr. Miller's Smoke Method," though I must admit I was rather generous in administering the smoke.

I consider myself a convert, though it is possible I might later strike such a slippery place that I would suffer a slide backward.

The other day I saw some of our bees packing their pollen-pockets full of the dust of rotten wood at our wood pile. We use cottonwood, and usually cut only dead trees or drift logs lodged on the sand-bars of the river, so there are often quite soft and rotten pieces. I suppose the fine dust left by wood borers would be particularly satisfactory to the bees, but the one I was watching was working on merely a punk stick of wood. There were a great many bees at the wood pile and they rather annoyed a man who was cutting there. The bees have also been working on some freshly cut green cottonwood trees that they are sawing up to haul away from the river bank where the river is cutting badly. They seem to be very resourceful little insects to make use of such unpromising materials for early supplies.

[Mrs.] R. L. Cheney.

Hardingrove S. Dak.

The smoke method of introducing queens should not be credited to Dr. Miller, but to Arthur C. Miller.

You are right about bees using unpromising material for pollen, and it almost looks as if they sometimes use unsuitable material, as when they use coal-dust.

Paste for Labels

Mrs. C. A. Wurth, of Englewood, Calif., writes:

"Enclose find a recipe for paste that will stick your labels on tin honey containers, as we have used it for a number of years and found it all right:

"Two tablespoons of corn starch mixed in a half teacup of water. One half teaspoon of lye dissolved in a tablespoon of water, then stir the lye into the corn starch. This will make half a teacup of paste. Be sure and use enough lye so your paste will be clear and not milky looking."

John Kneser, of Hales Corners, Wis., gives another recipe:

"To make labels stick on tin use muriate acid (poison); it can be had from a drug store. A small size ½-pound bottle costs 25 cents. Apply with a cloth and one minute later you may apply the label. Try it and you will want nothing better. The labels will never come off unless they are scraped off. It may be well to use gloves on account of the poison; however, it is not necessary if one is careful.

"Gum tragacanth is also good, but more expensive. The acid destroys the grease on the tin. I have not seen this in print before. It is certainly of great value to me."

A common complaint is the difficulty of getting labels to stay on tin. We tried using common flour paste in putting labels on 5-pound pails. As soon as thoroughly dry the labels dropped off. The case was probably made worse by the fact that pretty heavy paper was used in the labels. We were in haste to use the labels, and in the emergency used light rubber bands to hold the labels on, one band near the top, the other near the bottom. They served better than one would be inclined to think.

The next labels we got we had printed on paper that reached clear around the pail and lapped over an inch or so. Of course, there was no trouble about the paste holding on the lap. The label was printed double, the same label showing on two sides of the pail. This is a little more expensive than the single label, but it looks a little better than to have the bare tin showing on one side.

Fred W. Muth says he has no trouble getting paste to stay on tin if he first scratches the surface of the tin; and that there is no need of the scratching if sugar is used in the paste.

J. P. Brumfield, a Kansas druggist, says: "I have never had any trouble, using almost any kind of paste for tin. Wet a rag with the paste, and rub surface of tin where label is to go until the surface is dry or nearly so, then paste label and apply, and it will stay. It seems to clean the greasy surface. Just common dextrine and hot water makes a good, cheap paste, and I know will stay when applied as above.'

We have tried this, and found it a success.

Mr. Brumfield sends also the following, clipped from a druggist's book:

FLOUR PASTE.

Flour (wheat)	4 oz. (troy)
Water	16 fl. oz.
Nitric acid	1 fl. dr.
Oil of cloves	5 minims.
Boric acid	10 grains.

Thoroughly mix the flour, boric acid, and water, and strain the mixture through a sieve; add the nitric acid; apply heat, with constant stirring until the mixture has thickened; when nearly cold add the oil; strain it through coarse muslin if not perfectly smooth. This paste keeps well, and is much superior to tragacanth mucilage and ordinary paste. When it is required for pasting labels on tinned surfaces, the addition of 10 percent of glycerin will prevent the labels from falling off after drying.

123 Pounds from One Colony

In Deutsche Imker, a German bee journal, under the heading "Unusual Honey Yield," it is reported that Miss Emily Lustinetz took from one colony 123 pounds of extracted honey. Some of the sisters in this country would hardly consider that remarkable. But, then, we can't get the prices they get in Germany.

Dr. Miller's Answers

Send Questions either to the office of the American Bee Journal or direct to Dr. C. C. Miller, Marengo, Ill.. He does NOT answer bee-keeping questions by mail.

Building Up Nucleus With a Frame of Brood

1. About the middle of May I took from a strong colony a frame of brood in different stages with bees attached and put it on the old stand, moving the old hive somewhat aside, thinking that this nucleus would rear a queen and develop into a good colony. They worked for a few days, carried in honey but no pollen, nor did they start any queen-cells. So I gave them a sealed queen-cell. The next day I found this queen-cell lying on the floor. I put it back on the frame, but when I opened the hive again the same day, the bees were gone.

Now, what could have been the reason that these bees did not rear a queen, as there were eggs and plenty of brood and a good honey flow?

2. Why did they tear down the queen-cell I put in and finally leave their brood?

3. Is there any feasible way to build up a new colony with a frame of brood and bees without giving them a queen at the start?

Pennsylvania.

Answers.—1 I don't know for sure, but I suspect that the trouble was in moving the old hive "somewhat aside," leaving it so near that the bees could too easily find their old home.

2. I suspect you didn't properly fasten the queen-cell, for if it had been sufficiently fastened the bees would not have torn it down, even if they tore it open. Like enough they left the brood; as I have said, their old home was so near that they found it.

3. Yes, it may be done with a queen-cell, or even with young brood. If you will try it again, and move the old hive farther away than the nearest neighboring hive, or a rod away in case there is no neighboring hive, you will likely succeed.

Late Requeening—Wintering

1. When requeening is done as late as may be in accordance for best all-around results, what prospect is there that the colony concerned will not swarm in the year following?

2. Please state the latest time requeening should be done?

3. On page 208 of the June American Bee Journal last, in center column, you answer a question about controlling swarms in an apiary run for comb honey. At the end you say "the foregoing to be the best for an out-apiary." Now, which of these is the best for a home-apiary, or please name them in the order of preference for the latter?

4. Previous to this last winter, I seemed to have good results in wintering single-walled hive colonies, by just dumping a box over them two to three inches all around, no packing, overlapping back and sides of bot-

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tom-board and full half exposure to the South. This last winter did not show up well; there was considerable evidence of mice having gotten in between the outside of the hive and inner side of box or boxes. Mice or any such animal could not get inside of the hive, the back of the latter being all closed, and the entrances being provided with grating. The queer thing was that all such colonies at first examination had queens, and almost all of them had ample stores left, but number of bees rather small. Do you see any way mice, etc., might have gotten at the bees, or how can you account for the low state of the colonies?

PENNSYLVANIA.

ANSWERS.—1. So many factors enter into the problem that a definite answer can hardly be given. The difference in bees, seasons, and management have special bearing. Speaking in very general terms—and at that only a guess—I should say that with such a queen the prospect for no swarming might be three times as good as with a queen three months to a year older. But I would guess that the prospect would be five times better still with a queen of the current year's rearing.

2. That would depend upon the season. A good queen could be reared from an egg laid eight days before the close of the honey flow provided that conditions would still allow the flight of drones until the queen was a week old.

3. I didn't mean that the plans mentioned were the best for an outapiary, and that some other might be better for a homeapiary. What I meant was, that the plans were given for a homeapiary, and "I don't know of any better way.....in an outapiary." As to preference, I gave that when saying, "More likely than any other way, the dequeening treatment will be used," and I may here add, especially if a queen can be given that has lately begun laying. As to the order of preference of the others, it would be hard to say: "Circumstances alter cases" But it's all the same for homeapiary and outapiary.

4. If there was no chance for the mice to get inside the hive itself, I don't see how they could do any harm by being between the hive-walls and the outside box, unless it be by their jarring and noise. One would hardly think that would amount to much.

Uniting by the Newspaper Plan

1. When uniting colonies by the newspaper plan, how long should I leave the new swarm separate, if I leave it for the bees to kill the queen?
2. How long should I let the paper remain in the hive?
3. Do bees winter better in double-walled or single-walled hives?

PENNSYLVANIA.

ANSWERS.—1. It doesn't matter greatly; you may leave them for weeks untouched, but it is generally better to get the brood-combs all together in one story as soon as the bees have united, say in three to six days.

2. You may leave it for the bees to clean out at their convenience, but it is better to take it away when you put the brood all in one story.

3. Some have better success with double walls, and some with single.

A Beginner

1. Is a hive with ten Hoffman frames large enough for the average queen?
2. Why do they make the Hoffman frame so shallow?
3. In clipping queens' wings how much of the wing do you clip?
4. If you only clip one wing is that enough to prevent her from going with a swarm?
5. Does a man make anything by using foundation in full sheets, or is it just an advertising scheme to get you to buy lots of foundation?
6. They say it takes 10 pounds of honey to make one pound of wax, and the way it is made it is only about one-third wax. That way a pound of wax would go quite a ways. If that is true, I believe a person does not save anything by using full sheets of foundation?
7. Do bees need salt?
8. Do bees fill all their frames with brood in the spring, or it being cold and no honey coming in, has it anything to do with brood-rearing?
9. Does every frame in a hive have to be filled with brood before they swarm?
10. Do the field bees ever change with the bees that work in the hive, and can the bees in the hive gather honey and pollen?

MINNESOTA.

ANSWERS.—1. That isn't easy to say; but I suspect that in the height of the laying season the average queen would use more room if she had it.

2. Perhaps the greatest reason is because it allows a larger surface on top than would a deeper frame.

3. All that can conveniently be clipped of the two wings on one side, say half or more.

4. Plenty.

5. Figure it out for yourself. You can get along with so little foundation that you can practically save the cost of it, say 80 cents per colony. Then you will have drone-cells in about a fifth of your combs. That means a fourth more worker-cells in your combs built upon full sheets of foundation, a fourth more workers raised, and a fourth more honey produced. If the colony without foundation yields you $3.20, the one with foundation should yield a fourth more, and a fourth of $3.20 is 80 cents. So it just comes out even, doesn't it? You have saved 80 cents on foundation and lost 80 cents on honey. But that is not the end of it. Those combs ought to be good for 30 years or more, but say 25. If you lose 80 cents every year for 25 years, it will make $20 in all. So your saving of 80 cents has cost you a loss of $20, making you $19.20 out of the whole dicker. Then something more should be added for the rearing and feeding of the extra drones. But I don't want to be hard on you; a loss of $19.20 is bad enough.

I want to save all I can, and I have always felt I couldn't afford to do with less than full sheets.

6. I don't know whether it takes more or less than 10 pounds of honey for a pound of wax, and you are away off if you think there is anything but pure wax in a new comb (you may get less than a third of wax from old comb, but that's nothing to the point), but I didn't figure anything for the cost of the wax, and in any case more wax must be used if there is no foundation, so the only difference is to add something more to that $19.20, if you insist upon it.

7. I don't know; but from the way I've seen them about a salt barrel I suspect they do.

8. Yes, the cold lessens brood-rearing, and if no honey comes in for a sufficiently long time it will stop brood-rearing altogether.

9. Not necessarily; but when a swarm issues you will generally find all the cells in the brood-chamber filled with brood or stores.

10. In a pinch field-bees may do house work, and it's the regular thing for nurse-bees to become field-bees, but I don't believe there's ever a swap, field-bees becoming nurse-bees so that nurses can take the places of the field-bees. In other words, I don't believe field-bees ever become nurse-bees so long as there are plenty of young bees in the hive.

11. Yes.

Facts About Alfalfa Honey

I am writing a few facts about alfalfa honey suggested by Dr. Miller's reply to a question in American Bee Journal. In Colorado we produced both comb and extracted honey, and it frequently granulated in the combs, but one spring a neighbor brought us about 100 supers of comb honey that had been kept in the loft of a barn covered with hay all winter. There was not a granulation in the lot. This was largely alfalfa honey, with more or less sweet clover honey mixed in.

In our first season here in Montana our comb honey showed granulation in October, but since then we have had it keep in good condition all winter. One store has five cases left as clear as when gathered. We had half a case not sold; it stood in the shop where there was no fire all winter, and the temperature was down to about 60 degrees Fahr. below, and to 30 degrees below zero several times, and for a month zero weather was considered a "warm spell." I doubt if it was much warmer inside than out, Yet today the honey does not show any granulation. It is alfalfa honey mostly, with some sweet clover, no doubt.

Our extracted honey usually granulates quite early, but when speaking of comb honey I doubt if alfalfa honey will granulate any sooner than white clover, under same conditions.

I do not know why alfalfa honey should have such a bad reputation, but probably the weather conditions have much to do with its keeping liquid.

I always read answers to questions in American Bee Journal and other places with much profit, even if once in a while Dr. Miller says "I don't know." MONTANA.

ANSWER.—This is very interesting, but leaves one wondering why in the same climate alfalfa honey should sometimes granulate in October, when no self-respecting clover honey would ever think of granulating, and at other times remain liquid through a winter so cold that ordinary white-clover honey would make no attempt to keep liquid.

Width of Entrance—Crosses—Small Swarm, Etc.

1. What do you think of a ½-inch entrance in an 8-frame hive?
2. Are the crosses of Italian and black bees any good as honey gatherers?
3. Today, June 4, I hived a small swarm with a hatfull of bees in it. Do you think they will make a strong colony by autumn and store enough for winter?
4. Did you ever use a Parker foundation fastener? I got one but it was not good.
5. I see no bees working on white clover. Do you think there is any nectar?
6. Does it cost more to produce comb honey than extracted?

IOWA.

ANSWERS.—1. In winter, outdoors, it's too large; in summer, too small.

2. Yes, the first cross may be as good gatherers as pure Italians, but after that they are likely to deteriorate.

3. If the season is good, yes,

4. Years ago I used one and made quite good work with it.

5. There may, and there may not be. You can tell better later in the season. You will see very few bees on clover where it is plenty and not many colonies of bees.

6. Oh, my! Yes,

Miscellaneous Questions

1. It is recommended when bees swarm to set the new colony on the old stand, moving the old hive back first on one side then on the other, so that most of the flying bees will go with the new colony. If one does not wish to increase, would it not be better to shake most of the bees from the old frames in front of the new colony, giving the brood to weaker colonies, thus finishing the job at once?
2. When a colony has died and many of the workers are in the cells, will the bees remove them if placed in or over a strong colony?
3. When there are patches of white mold on comb from which bees have died, will bees remove this if placed over or in a strong colony?
4. When a queen is removed from the hive for any purpose such as the curing of European foulbrood, and it is desired to return her later, should she be caged in her own hive or some other, or put in a nucleus?
5. Are the coiled wire cages similar to

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queen-cell protectors all right, or should the Miller cage or some other be used?

6. Should she be caged alone or should some bees be caged with her, and if so how many?

7. How long can she be safely kept in the cage?

8 In rearing queens is it necessary to have a nucleus ready to receive each queen as she hatches unless she is to be immediately introduced to a queenless colony? If not, how is she handled?

9 If queen-cell protectors are used with wire-cages attached as illustrated on page 459 of "A B C and X Y Z of Bee Culture," and described on top of next page, how soon after hatching should queens be removed? INDIANA.

ANSWERS.—1. Yes, and it may be still better to shake off *all* the bees, provided the weaker colonies are strong enough to take care of the brood if no bees are added.

R. B. GRAVES WITH A SWARM, OF SPRINGFIELD, KY.

2. Yes; but you may help the bees if you dry the combs thoroughly and then, holding each comb horizontally, knock the top-bar hard against some solid substance. It may jar out many of the dead bees.

3. Yes; and it may be still better to put such combs *under* a strong colony.

4. Either way; but generally it will be better to cage her in her own colony.

5. Either will do, but it is better to have a cage large enough so a queen can move about in it freely.

6. Alone.

7. A week or two; perhaps longer.

8. A virgin just emerged from her cell may be given to a queenless colony or nucleus. It may be more convenient not to wait for the emerging of the virgin, but to give a ripe cell. Often, however, it is a great convenience to be able to keep a number of virgins a few days until places are ready for them, and for this purpose a queen-nursery may be used The one I like best is the Miller nursery described in my book, "Fifty Years Among the Bees."

9. They may be left several days, if necessary, but the sooner they are relieved from their imprisonment the better.

Diseased Brood

1. I have found some dead brood, and I would like to get your idea of what might cause it. I have read the American Bee Journal for several years and lots of other books on foulbrood, and this looks more like pickled brood than anything else. About a month ago I found some dead brood; very few cells died just before it was ready to seal. A few cells had been sealed, and I still find a little of it yet. None of it dies in the coil as they do in European foulbrood, and it has no ropiness, but is watery.

2. Please state whether or not European foulbrood visited you in 1914 or not. MISSOURI.

ANSWERS.—1. Like enough it's pickled brood, but instead of taking my guess about it send to Dr. E. F. Phillips, United States Department of Agriculture, Washington, D. C., and he will send you a box in which to send a sample, and then he will tell you what is the trouble, and what to do, without charge.

2. Yes, I published that I had some cases in 1914.

Feeding Extracted Honey in Winter

1. In feeding in winter extracted honey to bees, how much water should I put in the honey? My honey is very thick.

2. If I put the feeder over the frames, and put a shallow super over the feeder will it not be too cold for the bees as I winter them outdoors in single hives? The thermometer goes sometimes as low as 35 degrees above. I have been wintering them outdoors successfully so far, but never fed them over the *frames*.

One colony out on the ranch gave me 200 pounds of honey, half comb and half extracted. CALIFORNIA.

ANSWERS.—1. So far as my knowledge of the matter goes, I wouldn't add any water, no matter how thick the honey.

2. It would have to be a good deal warmer than 35 degrees above for the bees to go up and feed. But probably you don't often go very long without a temperature of 50 degrees or more.

Beestings

I have been handling bees for the past two years and have been stung several times, but it never seems to affect me very much; in fact, I have been stung five or six times at one time and never gave it a second thought. On the 14th of last month I undertook to look at my bees and one bee stung me in the face just under my eye. In less than five minutes I was deathly sick, and my entire body broke out in a terrible rash, or seemingly welts. Please tell me why one sting would make me so sick and leave my head as large as a bushel basket at this time where before they never seem to bother me in the least I would like to know what to do in case I am stung in this way again. NEBRASKA.

ANSWER.—I might explain that one's physical condition makes a difference in the effect of stings, or being stung in a particular spot, but the fact is I don't know a thing about it. Once in a great while such a thing occurs, and I know of no accounting for it. It may never happen to you again, and yet I should be more afraid of it than if it had not already happened

Packing in a sheet wrung out of cold water has been recommended as treatment, yet possibly one might recover as soon without it.

Requeening

I have one colony headed by a remarkable good queen and several whose queens are not as good. I am a business man with little time that I can give to the bees except after 4:30 p.m. Will you kindly advise me as to the best way to get all my colonies headed by a daughter of a good queen. OHIO.

ANSWER.—I will give you one way that may suit your case. Let us say your best queen is on stand No. 1. Take from No. 1 about half its brood with queen and adhering bees, and put them in an empty hive on a new stand, say No. 8. Although not absolutely necessary, it may be well to alternate the brood left in No. 1 with empty combs, or at least with frames containing no brood—it will be likely to give you more queen-cells, likely one or more on each frame. If any frame happens to contain no cell, staple upon it one that you cut from one of the other frames. Now you can make a nucleus for each frame in No. 1. Put it in an empty hive on a new stand, and put with it a frame, or better two frames of brood with adhering bees taken from some other colony or colonies. Plug the entrance tightly with green grass or leaves, so that when the bees dig their way out they will stay. Then when the queen in the nucleus is laying, you can use her wherever you like, or you can give nucleus and all to a colony that has been queenless two or three days.

Number 8 can be strengthened with sealed

R. B. GRAVES IN HIS APIARY AT SPRINGFIELD, KY.

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brood from other colonies, and the process repeated. If you don't care to repeat it, then you will do well, instead of dividing No. 1 into two equal parts, to take only two frames of brood and bees with the queen, in the first place, to put in No 8.

If you have extra queen-cells, you can make additional nuclei for them if you wish. A week after making No. 1 queenless count the cells started in it, and if you find you will need extra nuclei, start them at that time, so they will be ready to accept cells three days later. [Do not close the colonies or nuclei if the weather is very hot. Put them in the cellar a day or two instead.—EDITOR.]

Bottling Honey

Are drugs used in bottling extracted honey, or do they use the heating process to keep it from granulating? MISSOURI.

ANSWER.—I know of no one who puts into bottled honey anything but pure honey. Some heat the honey to 130 to 160 degrees. I'll tell you the way I do in selling a small quantity of extracted honey in my home market. It is put in 5-pound pails, each pail bearing a label that says the honey will candy or granulate, and instructions are given for reliquefying. When the consumer buys a pail at the grocery he knows what to expect, and I've never heard a word of complaint Nothing original about it; I am only following the track of hundreds of others.

Setling of Swarms

1. Why is it that bees of a swarm after being hived do not do much outdoor work the first day?
2. I had a swarm issue from a hive and alight and cluster on two separate branches of the same tree. Why is it that they did this way?
3. Will the old bees of a swarm ever go back to the old stand after being hived on a new stand?
4. Is it advisable to use shallow extracting frames for comb honey? OHIO.

ANSWERS.—1. The first thing needed in the new home of a swarm is an outfit of combs. In preparation for this the bees have loaded up with honey, a good many bees hang idly, secreting wax, there is work to do fitting up the new home, and this should account for less bees afield.

2. I don't know why. Quite often they do so. Let me ask you in turn, why do the bees of a swarm generally settle in a single cluster? It will not do to say that it is because the bees want to settle where the queen is, for I have seen many a swarm settle in a cluster when their clipped queen was not with them. Generally however, such a swarm returns without settling.

3. I don't know that any bee, old or young, that issues with a swarm, ever deserts the swarm, but it is possible that there may be exceptions.

4. It may be, in some cases, for a home market; and is always advisable for bulk honey, that is where combs are cut out, put in a container, and the container then filled up with extracted honey.

Ants

1. About a week ago I caught a swarm of bees. Now the hive is full of black ants and eggs. What can I do to keep the ants out of the hive? 2. Can I move the bees to the house before fall? ILLINOIS.

ANSWERS.—1. It is not likely that ants will do a great deal of harm in your region, the bees being able to take care of themselves; although in some parts of the South they are very destructive. If you can trace the ants to their nest you can punch a hole in it with a crowbar, pour into it half a pint or more of kerosene and plug up the hole with dirt. If the nest be very large it may be well to make several holes.

2. At so short a distance as ¼-mile it will not be well to bring the bees home until they have ceased daily flights in the fall, unless you take the precaution to leave in the place of the hive another hive in which is an empty comb. Many of the field-bees will return and be found on this comb in the evening of the second or third day, when you can shake them in front of the hive at your home. After you have repeated this a very few times the bees will stay where you want them.

Swarming

1. I had all queens clipped, and when they swarmed I expected to catch the queen in front of the hive. In putting them in a hive I found a young queen. What had they done with the old queen? I have had several that way. They did not swarm out, as I have been here to look after them and nothing grows on the land where a queen could get lost. Have only had a few days favorable for them to swarm, as the weather has been cold and backward.

2. I have one swarm that was working in the super in May with lots of brood I looked at them in June and found no queen and no brood. Why did they not rear another queen?

3 One swarm came out June 11. The 14th it swarmed again, and as I couldn't find a queen I ran them back. They came out again in the afternoon with a queen, so I kept them in a hive until morning and put them back. Now they stay. Why did they swarm?

4. I had one swarm come out and return. They came out the next morning. I placed an empty hive on the old stand. When they returned they would not go into the new hive, but went into two other hives near, so I placed the old hive back, and now the most of them are at home. They had several queen-cells.

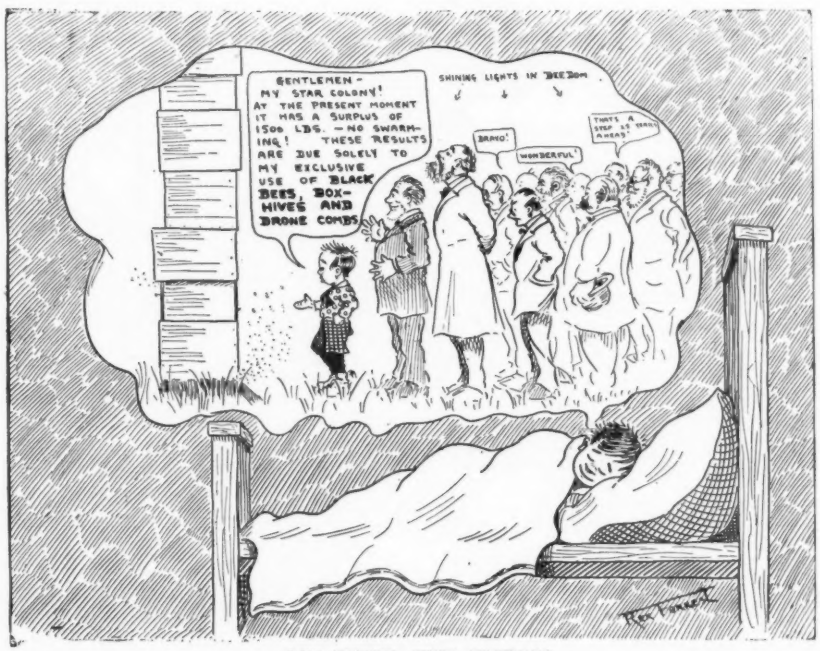
Why did they persist in swarming with no queen, or would she not come out because her wings were clipped? There were no eggs in the comb. They stay now and are working in the super. BRITISH COLUMBIA.

ANSWERS.—1. If from any cause the old queen does not issue with a prime swarm at the proper time, she is put out of the way and a young queen is allowed to take her place. In this case the weather was probably so bad that there was no chance for swarming until time for the old queen to be put out of the way.

2. They may have reared a young queen which may have been lost on her wedding flight.

3. Bees sometimes swarm out with a queen on her wedding flight, and when the first flight is not successful it will be repeated. More likely, however, a plurality of virgins were in the hive, all but one in their cells and when the first one came out with the swarm and you hived the swarm, a second virgin was liberated from its cell. The two virgins had a fight to the finish, and the victor then issued with a swarm, which you hived separately. Then during the night, the old colony being reduced, the bees gave up thought of further swarming, allowing the free virgin to kill the others in their cells, or else all were allowed to emerge from their cells and fight it out until only one was left. Then when you returned the swarm next morning, the two virgins had their bout, and the incident was considered closed.

4. The clipping of the wings had nothing to do in preventing the queen from issuing with a swarm, for a clipped queen comes out with a swarm the same as any other, only she cannot go off with the swarm. The likelihood is that when the swarm issued the first time the queen returned with them, but was lost the second time, and the bees would not stay in an empty hive without a queen, but were willing to accept the old hive when given to them.


GENTLEMEN - MY STAR COLONY! AT THE PRESENT MOMENT IT HAS A SURPLUS OF 1500 LBS. - NO SWARMING! THESE RESULTS ARE DUE SOLELY TO MY EXCLUSIVE USE OF BLACK BEES, BOX-HIVES AND DRONE COMBS
SHINING LIGHTS IN BEEDOM
BRAVO!
WONDERFUL!
THAT'S A STEP AT LEAST AHEAD!

MY FIRST BEE DREAM

Miscellaneous Questions

1. On page 136 of the American Bee Journal for 1916, you said that with the use of entrance guards to prevent swarming, when a colony does swarm and possibly unites with another swarm, after a time there will be only a young queen in the hive. Now what has become of the old queen if she could not leave the hive? Do the bees destroy her?
2. Can bees store as much honey in worker comb as in drone or surplus comb?
3 Do bees sleep any at night or any other time except in winter?
4. What are bur-combs?
5. I have read a lot about honey being so

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healthful, but have never read anything about honey-comb. Is it easily digested if at all?

9. When bees start queen-cells preparatory to swarming, if these and all subsequent cells are destroyed will this not prevent swarming at least to a great extent?

GEORGIA.

ANSWERS.—1. Yes, the bees probably ball and kill her, or else the first virgin emerging is allowed to kill her.

2. I am not entirely sure; the difference, if any, is hardly worth considering.

3. I suppose they sleep in summer as well as in winter, but don't know much about it.

4. Bur combs are the bits of wax that bees put between top-bars and elsewhere aside from the regular combs.

5. I think the wax is utterly indigestible. That does not say there is anything unwholesome about it. A large part of the food of animals, man included, is needed merely for its bulk, and is not digested at all. A bill of fare containing nothing but that which is entirely digestible would not be conducive to the best health.

6. The first time you kill the cells of a colony preparing to swarm, it will certainly delay swarming, at least a few days. In some cases you may continue killing cells every week or 10 days throughout the season, and there will be no swarming. Generally, however, the bees will swarm sooner or later, in spite of you.

Poor Wintering—Damp Cellar

1. Some of my bees are short in winter stores. How would it do instead of giving it to them to go into the cellar about January, take off the cover and set on a super with about 10 pounds of good capped honey.

2. Would it be best to put on an excluder or would the queen go up into the super? How would it do to put an inner cover on top of the excluder and let the bees feed up through the hole left for the bees to escape?

3. My celler is very damp, and the water always runs out of the hives in winter. Is there any way to prevent this?

WISCONSIN.

ANSWERS.—1. It might work, but I'm afraid it would not do so well as to have the honey sealed in the combs in the brood-chamber in the first place. If you try it. I would advise that it be not on a large scale.

2. There is danger that the bees would not go up unless it should be too warm in the cellar for good wintering, and if they should all go up it would mean death to the queen to be left below the excluder.

3. I don't know of any easy way to dry out a damp cellar except by having a fire or hot stones or bottles in it. Lime might do some good. But moisture in a cellar is not likely to do great harm if the cellar is warm enough. Indeed, there are reports of fine wintering with water running through the cellar.

REPORTS AND EXPERIENCES

Influence of Nurse Bees

I note with interest the speculations as to nurse bees from cross colonies being able to transmit their cross traits to progeny which they may be nursing.

In my opinion there is nothing in it, for as long as I can remember I have caught stray swarms, or bought them when it would keep bees out of the hands of those who knew nothing of them and would not take care of them. To bring them home would be to expose young bees mating to undesirable drones whose history I knew nothing of. So I have found it expedient to destroy their queens and use the colonies either as starters or builders of cells in my queen operations. The fact that I have never noticed transmission of those cross traits from such blacks would indicate that there is nothing in the theory.

K. HAWKINS.

Plainfield, Ill.

Handling Comb and Extracted Honey

For five years I have been handling my honey consumers' combs that were not quite all capped over, "put up in extracted honey," something like sardines are put up in olive oil. The combs stand on edge with little bayous of liquid honey between. It makes a very appetizing looking dish. The cans are scalded, corners paraffined, and a can 4x5x7½ inches, weighing 7 pounds brings $1 00. Twenty-two of these slipped out of a store in four days.

It is very embarrassing to me, at my age, not to be able to handle an apiary large enough to supply my home demand.

Fraser, Idaho. F. F. GEORGE.

Kerosene Tin Uncapping Cans

The word "uncapping" as applied to the fixture may be incorrect, as you, Mr. Editor, say on page 47, February number, but I guess it will stick to it all the same.

With regard to the kerosene tin uncapping can, I had one of these when I first started in the game, but I threw it away because its capacity was too small, after I became the proud possessor of a dozen hives, and as to having many of these fixtures kicking around; well, I should consider I was something of a sucker if I did. What on earth would be the good of this anyway if you are uncapping say 200 combs an hour? Why, one would be choked every few minutes. Not only that, but the opening at the top is too small to allow the cappings to fall in freely enough.

I do not use the Dadant can, but I use tubs on the same principle, and I took the idea from the Dadant can. The tub I use holds all the cappings from 200 to 400 combs, depending on the amount of cappings on the combs. When full, it is pushed along the bench and another put in its place.

The tub underneath has a tap in, and the honey is drawn off and the cappings allowed to drain indefinitely. Those tubs full of cappings can be piled one on top of another up to the roof and take up very little room in the building, and when not in use they are piled away outside, as one fits right inside the other. For this reason they are handy to cart about from one farm to another.

The kerosene tin arrangement is of no use to me.

MAJOR SHALLARD.

Glenbrook, Australia.

European Foulbrood Again

The following private letter from an experienced apiarist will prove valuable to our readers:

"I have great faith now in Dr. Miller's treatment for European foulbrood. I do not intend to destroy any more good worker-combs when it is at all convenient to save them.

"Last July, early in the month, I caged a queen in one of my outapiaries. It so happened that I did not visit that apiary again until late in the fall, and I had forgotten all about the caged queen. It was late in September or early in October, 11 weeks later, that I went there thinking to take home that diseased colony, wishing to have it where I could keep an eye on it. I opened up the hive to see how things were. To my surprise I found no brood at all, though brood-rearing seldom ends here until well into October. But there was a good lot of honey and the combs showed no sign of disease. I pulled one full frame out for a look and noticed a cage in the bottom. Said I to myself, what's that queen-cage there for? Then it flashed over me that I had caged the queen back in the summer-time

"Well, Dr. Miller, the queen was alive though all her attendants were dead. There were still about 8000 bees in the hive, so I let out the queen, took up the hive and set it in my home-yard. Today there are two patches of healthy brood and enough bees to pull through. The colony really needs some help to make it build up rapidly, but for the test I shall refrain from any assistance so long as I think the colony will be able to get into shape in time. I shall soon requeen for the queen is not a good one.

No, I do not recommend such a long period of caging, but will bear testimony that it serves to get the combs well cleaned of disease.

"I tried a doubtful experiment last summer. I have some colonies at my brother's place in Lancaster, Mass., and last summer, early in July, I went there to treat them for foulbrood. It was before I realized that colonies should be very strong to warrant success in the caged-queen treatment. These were very strong, and I drove fair-sized swarms from four of them to bring back here with me. I gave caged queens so shut in that the bees could not liberate them, leaving them to my brother to liberate after the lapse of a week or so. Even with this poor treatment, so far as I know only one of the colonies is now diseased.

"The four swarms were brought to Norwich, some 80 miles, in my auto. As my auto is an old one-cylinder Cadillac, they got well shaken on the trip. At any rate, I did not wait the regulation four days before hiving them on chambers of brood. It was just at the opening of the sumac flow and I wanted those bees to store a super of honey per swarm. I hived them on shallow frames of brood (for I have a few colonies with divisible brood-chambers, and I like to cut down to one body when the flow begins). I fully expected that they would all be diseased, but intended to treat them after the flow. *Not one of those four swarms gave the disease to the brood with which they were furnished.* Honestly, Dr. Miller, would not 99 percent of all experts assert that a swarm shaken from diseased combs and hived in less than three days upon combs of brood of all ages transmit the disease to the new brood?

"Yet I do not advise this as a practice."

Norwichtown, Conn. ALLAN LATHAM.

Same Disease Again

I see Mr. J. E. Pleasants, inspector of Orange Co., Calif., has apparently the same bee disease to contend with that I had ten or more years ago. If he will requeen and at the same time move every diseased colony out of bee-range to a new yard I think he will cure it. I moved colonies out only two or three times, and it has never come back. It not only stopped it at the home-yard but it cured those I moved.

Requeening in the home-yard will do no good, at least it did not for me. It may be a kind of bee paralysis, but it is not the kind we are all used to. We lost several colonies entirely, and many lost nearly their entire field force; some lost nearly all their brood.

At the time, I had a talk with O. O. Poppleton. He seemed to think it was not the kind of paralysis he was used to. I think there is something in rousing them up and moving that helps them. Colonies that do not have it bad need not be requeened.

Marceline, Mo. IRVING E. LONG.

Encourage the Use of Honey

DEAR EDITOR:—I am enclosing a clipping from our local paper. One of the ladies' clubs here known as "The Housekeepers," decided that they would have a Bee and Honey Day, and insisted on my helping them with their program. I had just received your pamphlet "Facts About Honey," and considering it very good material, gave it to a member who read it at the meeting.

Each member responded with a short article on bees and honey, and some gave demonstrations in baking cakes, cookies, etc., with honey.

This was my first experience as "Bureau of Information on Bees and Honey" at a ladies' club, but I enjoyed it very much and thought the ladies did well, and the demonstrations were interesting and instructive. You never tasted anything better than these honey cakes and cookies.

When it was too late I concluded that the ice cream should have been made with

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honey, and instead of mints or candies the ladies might have served some white clover candied honey cut in small cubes

Another thing also occurred to me: If they ever have another such program, should it be in the honey season, I could have some bees and honey there; take the honey from them, extract, and give the bees the combs again. I believe it would be an inducement for more people to eat extracted honey, and why wouldn't this kind of a program be a good thing for lots of other clubs to take up? It would be a change and not only interesting but instructive, for there are lots of housewifes that do not realize the food value of honey,

Lots of manufacturers of food stuffs have a national day for their product, why not have one day of the year for a "honey day?"

Wenona, Ill. A. COPPIN.

Summer Field Meet in Tennessee.—Tennessee beekeepers will hold summer field meetings as follows:

August 9—Nashville, at the home of Mrs. Grace Allen, 4409 Charlotte Ave.

August 10—Hollow Rock, at the apiary of L. E. Smith, Memphis.

August 11—At the Tri-State Fairgrounds. Meetings to begin at 10 a.m.

Short talks will be given by Dr. E. F. Phillips, Frank C. Pellett, E. R. Root, Dr. J. S. Ward, J. M. Buchanan, Ben G. Davis, and others.

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.

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PLACE your order early to insure prompt service. Tested, $1.25; untested, $1.00. Italians and Goldens. John W. Pharr,
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GOLDEN ITALIAN QUEENS, no better honey gatherers anywhere at any price. Untested, $1.00. Tested, $1.50. Wallace R. Beaver,
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ITALIAN QUEENS that produce hustlers. Nothing but select queens sent out Untested, $1.00; $9.00 per dozen.
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VIGOROUS prolific Italian queens, $1.00; 6, $5.00. My circular gives best methods of introducing. A. V. Small,
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LEATHER COLORED "Nutmeg strain" of queens, $1.00; doz., $10. Tested, $1.50. Special price on large lots. Return mail.
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FOR SALE—50 colonies of bees and fixtures; equipped for section honey. Or will let them out on shares to party with good location. Address, E. B. Milton, Greggs, Ga.

"QUEENS OF QUALITY" reared from a daughter of one of Dr. Miller's famous queens, $1.00 each by return mail. After July 1st, 75c each; $8.00 per doz.
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MY BRIGHT Italian queens will be ready to ship after April 1st at 60c each. Send for price list. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

CHOICE Italian, Carniolan or Caucasian queens. Untested, 75c. Tested, $1.25. Breeding queens, $2.50. Virgins, 40c each; 3 for $1.00. C. W. Finch, 1451 Ogden Ave., Chicago, Ill. Phone Haymarket 3384.

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GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Goldens and their honey-getting qualities. Price, $1.00 each; Tested, $2.00; Breeders, $5.00 and $10.00.
2Atf J. B. Brockwell, Barnetts, Va.

FOR SALE—Good Italian queens, untested 75c; tested, $1.00; nuclei, 2-frame, $3.00; 1-lb. package, $2.00; 2-lb. package, $3.00. Untested queen with bees at above prices. Will begin to send about April 1st. G. W. Moon
1904 Park Ave., Little Rock, Ark.

PHELPS' Golden Italian Queens combine the qualities you want. They are great honey gatherers, beautiful and gentle. Mated, $1.00; six, $5.00; Tested, $3.00; Breeders, $5.00 and $10. C. W. Phelps & Son,
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Rt. No. 7, Fairfield, Iowa

CARNIOLAN, golden, and 3-banded Italian queens. Tested, $1.00. Untested, 75c; 6, $4.20; 12, $7.80. ½-lb. bees, 75c; 1-lb. $1.25. Nuclei, per frame, $1.25. No disease; everything guaranteed. Write for price list.
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AN established strain of honey gathering golden stock. Honey is what you want without much swarming. Book your orders early to save delay. One untested queen, $1.00; 6 for $5.00; 12 for $9.00. Write us what you want. T. S. Hall, Talking Rock, Ga.

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GRAY CAUCASIANS—Early breeders; great honey gatherers; cap beautifully white; great comb builders; very prolific; gentle; hardy; good winterers. Untested, $1.00. Select untested, $1.25. Tested, $1.50. Select tested, $2.00. H. W. Fulmer,
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QUEENS, improved three-band Italians bred for business, June 1 to Nov. 15. Untested Queens, 75c each; dozen, $8.00; Select, $1.00 each; dozen, $10. Tested Queens, $1.25; dozen, $12. Safe arrival and satisfaction guaranteed. H. C. Clemons,
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Robt. B. Spicer, R.F.D. 181, Wharton, N. J.

YOUNG tested queens, $1.00 each; $12 per doz. Untested, 75c; per doz, $7.00. We breed three-banded Italians only, and we breed for the best; our 30 years of queen rearing prove this. We never had a case of foulbrood in our apiary, and we guarantee every queen sent out by us.
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MY THREE-BANDED northern-bred pure Italian queens must be seen and tried to be fully appreciated for hardiness and honey gathering qualities, etc. Give me a trial order. My prices for August and September. Untested, 80c. Select untested, $1.15. Select tested, $2.50. Fay L. Barber,
200 State St., Lowville, N. Y.

CARNIOLAN GOLDEN and three-banded Italians. One untested, 85c; 6, $4.80. Tested, 1, $1.25; 6, $7.20. Breeders, $4.00. Bees by the lb., $1.25 per lb. Nuclei, 1 fr., $1.75; 2 fr., $2.75; 3 fr., $3.50, without queen. Full colonies in A. I. Root hives with Hoffman frames with queen, 8-fr. hive, $7.50; 10-fr., $8.00.
D. L. Dutcher, Bennington, Mich.

FOR SALE—Pure Italian bees with tested queen, $4.50 per col.; cols. with mismated queens, $4.00 each; light colored hybrid cols. with queen, $3.50. All from the J. P. Moore's strain and in 8-frame hive bodies in winter cases, standard full depth self-spacing Hoffman frames, 8 to each hive. All combs straight, strong and healthy with plenty of honey, f. o. b. here. ½-lb. package wire cages without queens, one, $1.50; 2, $2.00. If queens are wanted add price of queens to package. Untested, 85c. Tested, $1.50. Breeders, 3.00 to $5.00. Wilmer Clarke,
Earlville, Mad. Co., N. Y.

American Bee Journal

FOR SALE—300 colonies of bees, free from disease; mostly in Root hives, with equipment, at a bargain; should have about 10,000 pounds of honey to take by July 15.
R. W. Rogers, Lometa, Tex.

HONEY AND BEESWAX

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co.,
6A12t 173 S. Water St., Chicago, Ill.

FOR SALE—Well ripened white clover honey in new 60 lb. square cans. Write for prices, stating quantity wanted. Sample 10c.
L. W Mundhenke, East Dubuque, Ill.

COMB HONEY our specialty. Highest market prices obtained; prompt returns made. Send us your shipments
Albert Hurt & Co., New Orleans, La.

FOR SALE—Raspberry, basswood, No. 1 white comb, $3.00 per case; fancy, $3.25; 24 Danz. sections to case. Extracted, 120-lb. cases, 9c per lb. W. A. Latshaw Co.,
Clarion, Mich.

SUPPLIES.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies including Dadant's foundation. Write for catalog.
A. E. Burdick, Sunnyside. Wash.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co.,
4Atf Greenville, Tex.

WINTER PROTECTION—When division-boards are put in supers at sides next brood-nest and bees seal up all cracks, thus creating double-walled dead-air chambers on all six sides of brood-nest, result is bees in our hive are in better condition in spring than those of any colonies in ordinary hives.
Wm. F. McCready, Bx 2, Estero, Lee Co ,Fla.

FOR SALE

EIGHTY ACRES of good land in Jersey Co., Ill., well fenced, fine six-room house, good barn and out-buildings. All kinds of fruit. Price, $7,000. If taken quickly, will include 26 hives of bees in standard 10-frame hives, in good condition. This is a fine honey location with several good market towns near.
Frank Brown, Route 2, Jerseyville, Ill.

HONEY LABELS

HONEY LABELS that create a favorable impression on the buyer. Dealers admire them and give them prominence. Catalog Free.
Liberty Pub. Co., Sta. D, Box 4H. Cleveland, O.

HONEY AND BEESWAX

CHICAGO, July 18.—For the past month there has been little doing in honey, so that a market price is really a difficult thing to quote, as parties who have carried over their honey are accepting what they are offered. We look for the new comb honey to sell at about 13c per pound for the best grades of white, and for the time being the ambers may bring nearly as much, as there does not seem to be much of that in the market. Extracted ranges from 7@8c per pound for the white, and 6@7c per pound for the amber.

Very little of the harvest of 1916 is on this market, and what there is, has not been sold, the weather now being warm, the retail trade are not endeavoring to sell.

Beeswax is bringing 28@30c per pound according to color and cleanliness.
R. A BURNETT & CO.

KANSAS CITY, MO., July 17.—There is quite a heavy flow of white clover honey in this section, and on account of the heavy crop, the demand is more or less slow. The price for the best stock, 24 sections, ranges around $3.50 a case. Extracted honey is moving fairly well at 7c for old and 8c for new,
C. C. CLEMONS PRODUCE COMPANY.

SAN ANTONIO, July 17.—Owing to the large crop of honey having been thrown on our market, and the lack of cooperation among producers, the prices are somewhat demoralized. South Texas bulk comb honey is moving freely at 8c basis, and good quality extracted at 6c. Prices show a tendency to become stiffer, and we expect higher prices to rule in this section within 30 days. Beeswax is firm at 25c cash and 27c exchange basis. SOUTHWESTERN BEE CO.

DENVER, Colo., July 19.—We are selling new crop comb honey in the local market at the following jobbing prices: Fancy per case of 24 sections, $3.38. No. 1, $3.15; No. 2, $2.93. White extracted, 8½@8¾c per pound; light amber, 8@8¼c per pound, and amber 7@8c per pound. We pay 26c per pound in cash and 28c per pound in trade for clean, average yellow beeswax delivered here.
THE COLO. HONEY PRODUCERS' ASS'N
F. Rauchfuss, *Mgr.*

Better Queens and Bees for Less Money

20 Years of Select Breeding Gives Us Bees and Queens of Highest Quality
Queens for Honey Production - - Queens of Unusual Vitality
QUEENS THAT SUCCESSFULLY RESIST EUROPEAN FOULBROOD

Our select colonies for breeding purposes, larva and select drones are those of the highest standard, the choice of over 1000 hustling honey-producing colonies of pure Italian bees. These select colonies are located at such a distance from all other bees as to assure pure mating, and thus effective use of our select drones. The larva we use in grafting is as small as can be seen and handled, having just come out of the egg. These are placed cells which in turn are placed and nourished in strong ten-frame colonies, which, when honey is not coming in sufficiently, are heavily stimulated by feeding. Thus we get large, well nourished cells which in turn produce large long-lived and hardy queens, which give workers unexcelled for honey producing qualities. We use no baby nuclei. All our queens are hatched and reared in strong three and five frame full-depth hives. Thus natural conditions are preserved and the best queens produced.

PRICE LIST OF OUR 3-BANDED AND GOLDEN ITALIAN QUEENS READY BY RETURN MAIL

Untested.....	50c each or $45 per 100	Tested.....	$1.00 or $ 90 per 100
Select untested.....	60c " " 60 " "	Select tested.....	1.25 " 115 " "

All queens warranted purely mated. Wings clipped free of charge.

PRICE LIST OF OUR SWARMS OF BEES FOR YOUR FALL INCREASE

1-lb. swarms with select queens.....	$1.75	2-lb. swarms with select queens.....	$2.50
3-lb. " " " "	3 50	5-lb. " " " "	5.00

We can now fill all orders for either queens or swarms of bees by return mail and express. We have no disease of any kind. Satisfaction we guarantee.

M. C. BERRY & CO., HAYNEVILLE, ALABAMA

THERE OUGHT TO BE QUALITY HERE

"We are furnishing Kennith Hawkins, the 'Quality Hill Queen' Breeder, one of our 'Queens of Quality,' and will offer queens from one of The Review mothers crossed with his 'Quality Hill' Drones for 1916. We do not think one can make a mistake in buying this stock." No buyer of 24 or more Queens for delivery after June 15, can afford not to ask for our special discounts on these great honey gatherers.

The Review, December 1915: This Townsend breeder exceeded the average of 1100 colonies by over 500 percent last year. Sure will be quality here. These excellent honey queens, one for $1.00; 6, $5.00 12, $9.00 until June 1. Later, one, 75c; 6, $1.00; 12, $7.50. Write for booklet on Quality Hill Queens.

KENNITH HAWKINS, PLAINFIELD, ILLINOIS

Bee Primer for the prospective beekeeper or beginner. A 24-page pamphlet, finely gotten up, with illustrations. It gives a general outline of bees and beekeeping such as desired by the amateur. Two pages are devoted to instructions to beginners. Price, postpaid, 15 cents, or sent free with a year's subscription to American Bee Journal at $1.00.

A Year's Work in an Out-Apiary. This is a booklet by G. M. Doolittle, the well known honey producer of New York State. He tells how he secured an average of 112½ pounds of honey per colony in a poor season. It is fully illustrated, and tells in detail just how Mr. Doolittle has won his great success as a honey producer. Price, postpaid, 50 cents; or with the American Bee Journal one year, both for $1.25. Every beekeeper should have a copy of this booklet and study it thoroughly.

Langstroth on the Hive and Honey Bee.—A reprint of Langstroth's original book printed in 1853. Of course, this older book is out of date, but it is valuable historically, and should be in every beekeeper's library in connection with the modern revised work. Postpaid, $1.00. Clubbed with the revised book, price of both, $1.85. Both books and Am. Bee Journal one year, $2.50.

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Tells about planting, pruning, spraying and selling fruit and garden truck.

Ask Us Your Hard Questions.

We conduct this department for the special benefit of our subscribers. Experts answer all questions by mail and through the columns of the magazine.

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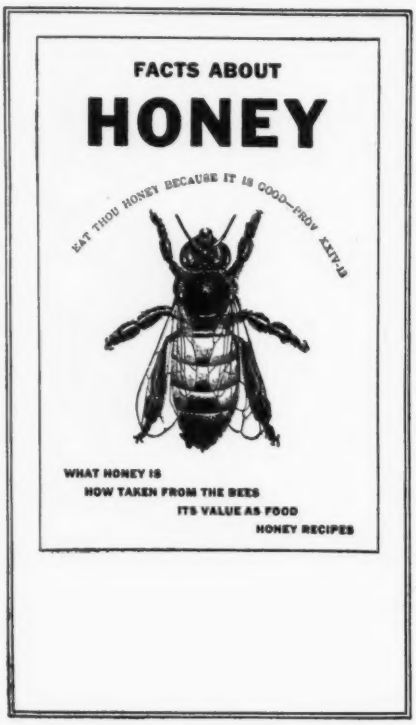
FACTS ABOUT HONEY



THE editorial on the 'Food Value of Honey," on page 404, of the December American Bee Journal was so highly appreciated, and so many enquiries came for a reproduction of it in pamphlet form that there was prepared a 16-page booklet for advertising honey containing this and other matter of importance which the consumers ought to know. Size of booklet 5 3-4x9 inches. Weight a scant ounce.

"Facts about Honey" contains the following information illustrated with 17 splendid half tones: What honey is and where gathered; Principal kinds of honey; Different flavors and colors; How produced; Bee-trees and bee hunting; Bees in boxes and gums; The new way of honey production; Movable-frame hives and sections; Comb honey; Comb foundation; Why the bees build straight in the section; Chunk honey; Extracted honey, the honey extractor and manner of extracting; Purity of honey; Granulation of honey, how to melt it; Food value of honey; Is honey a luxury; Honey as health food; Uses in cooking; Fifty recipes for use of honey.

On the last page room enough is left to print the beekeeper's name and the prices he asks for his honey. Or the address may be printed on the front cover page. At the bottom of the last page there is also room to address the booklet to the consumer, after folding it so that no envelope is needed. A gummed "Eat Honey" label or wire clasp is sufficient to hold it together for mailing.

We will furnish these pamphlets at unprecedented low prices, as follows:

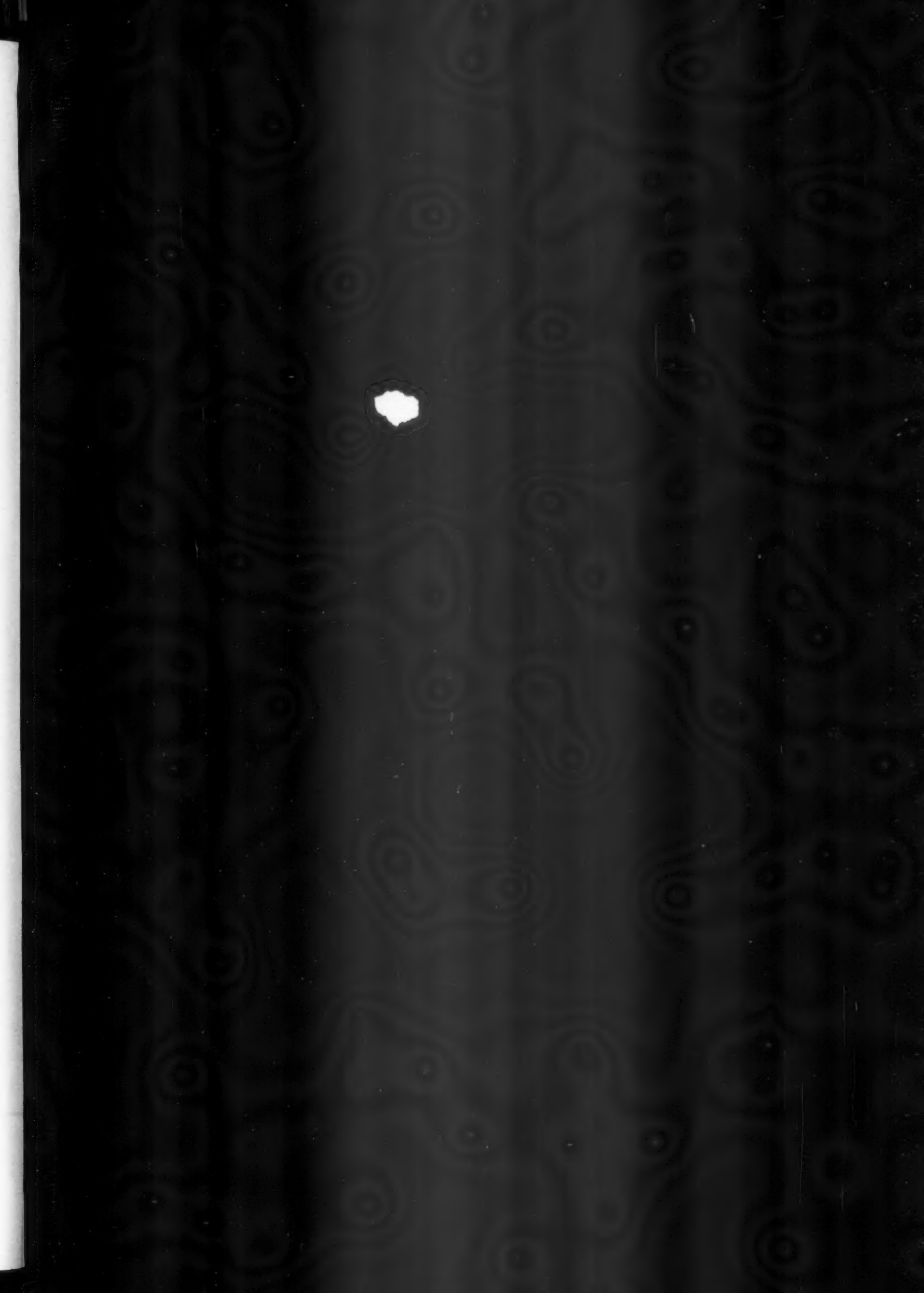
Single copy as sample, free.		500 copies, postage extra -	$ 5.00
Less than 30 copies, postpaid, each	$ .03	1000 " " " -	9.00
30 " " -	.75	2000 " " " -	17.00
50 copies, postage extra -	.75	5000 " " " -	40.00
100 " " " -	1.25	10,000 " " " -	75.00

For parcel-post shipment, the weight is about 6 pounds per 100 copies.

Printing name and address of producer, with brief price-list of honey on either front or back page: 500 or less, $1.00; 1000 or more, $1.50 per thousand.

The pamphlet contains no advertising or address of any kind and is distinctly a positive, unbiased and clear explanation of the usefulness of honey, intended for a reply to the numerous questions usually asked by the uninformed consumer. Send your orders to

American Bee Journal, - Hamilton, Illinois



American Bee Journal

MARSHFIELD GOODS

BEE-KEEPERS:—
We manufacture Millions of **Sections** every year that are as good as the best. **The CHEAPEST** for the Quality; **BEST** for the Price. If you buy them once, you will buy again.

We also manufacture **Hives, Brood-Frames, Section-Holders and Shipping-Cases.**
Our Catalog is free for the asking.

Marshfield Mfg. Co., Marshfield, Wis.

QUINN'S QUEENS OF QUALITY

ARE PEERLESS—"THERE'S A REASON"

They are thoroughbred, pedigreed, three-banded Italians and Grey Caucasians. "Mendelian" bred; good qualities are accentuated. Special drones from superior mothers; results are obvious.

PRICES—Untested, April, May and June, $1.50 each. After June 30, $1.00 each. Tested queens of each race, $2.00 each.

For Italians, address Ft. Myers, Fla.; for Caucasians, address Houston Heights, Tex.

CHARLES W. QUINN
609 W. 17th Ave., HOUSTON HEIGHTS, TEXAS

THE QUEEN OF ALL QUEENS

Is the Texas Queens. Send me your orders early for Italian and Carniolan. Queens, $8.00 per doz. Bees per pound, $1.50.

CIRCULAR FREE

Grant Anderson, Rio Hondo, Texas

START THE SEASON RIGHT

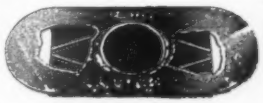
By using **Dittmer Foundation** the bees like it for it's made to just suit them, and is just like the Natural Comb they make themselves.

Send for prices on having your Beeswax made into Comb Foundation, which includes all freight charges being paid.

All other Supplies in stock

Gus Dittmer Company, Augusta, Wisconsin

PORTER BEE ESCAPE



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If no dealer, write factory
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Write us for our 64-page catalog. FREE. Full information given to all inquiries. Let us hear from you. We handle the best make of supplies for the beekeeper. Beeswax exchanged for supplies or cash.

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High Hill, Montg. Co., Mo.

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BEE SUPPLIES

Best Sections, Best Shipping Cases
Best of all Supplies

Best prices you will get for your honey when put up in our sections and shipping cases. "LOTZ" sections and shipping cases have stood the test. Why? Because they are perfect in workmanship, quality and material. Buy LOTZ goods when you want the BEST. Our 1915 catalog ready now. Send your name and get one.

H. S. DUBY & SON, St. Anne, Ill., carry a full line of our goods.

AUG. LOTZ CO. BOYD, WIS.

Queens and Bees

FROM THE COTTON-BELT APIARIES

Will and **must** please you. Three-band Italians only. Prices from May 1st to July 1st as follows: Queens, untested, 75c each; $4.00 for six or $7.50 per dozen. Tested $1.00 each; $5.70 for six, or $10.75 per dozen. Select tested, $2.50 each. Breeding queens, $5.00 each. One pound package bees, $1.25; 25 packages, $1.00 each; 2-pound package, $2.25 each; 25 packages, $2.00 each; 3-pound package, $3.25 each; 25 packages, $2.75 each.

Special prices on larger quantities booked early. Twenty years experience. No disease. 75 percent of untested queens guaranteed purely mated. Safe arrival and reasonable satisfaction guaranteed.

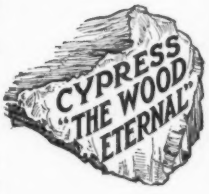
THE COTTON-BELT APIARIES
Box 83, Roxton, Texas

A FINE untested Italian Queen for 60c. Tested, $1.00. Satisfaction guaranteed.

J. F. ARCHDEKIN
Bordelonville, La.

BECAUSE IT LASTS

That is One Argument in Favor of Cypress as a Beekeeper's Lumber



There are many qualities that make the value in lumber depending, of course, on the uses to which they are put. But of all virtues that of **endurance** comes first. The wood that resists rot influences longest, especially when the wood is used in a service by which it is exposed to wet and dry conditions and earth-contact—that wood is accredited with being able to give the user the greatest INVESTMENT VALUE.

No use tries the lasting qualities of lumber greater than that of Bee Hive construction. It is the very deuce to get lumber that will not too readily rot—unless one gets Cypress lumber. Then there is a good show for endurance that means **real money saved on Repairs You Don't Have to Make.** Try it, Mr. Beekeeper.

STUDY THE WOOD QUESTION

There's one way to get at this matter of endurance—through books of authority. Such are the 41 volumes of the internationally famous Cypress Pocket Library. These books are not "advertising"—they are authoritative references on file in the libraries of scores of technical schools and National institutes. Ask for Vol. 1 to start with; it contains the complete U. S. Govt. Rept. on Cypress, "The Wood Eternal," and a full list of the other volumes; then branch out until you cover the subject.

SOUTHERN CYPRESS MFRS.' ASSOCIATION
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For quick service address nearest office.

DADANT'S FOUNDATION

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Your Bee Supplies Shipped Promptly?

We carry four to six carloads of the finest BEEWARE on hand at all times, and can fill your orders without delay. BEE-HIVES, SECTIONS, SHIPPING CASES, TIN CANS, and all other Bee Supplies, also

DADANT'S FOUNDATION

by return freight, mail or express. We have forty years' experience and thousands of satisfied customers. Are you one of them?

DADANT & SONS, Hamilton, Illinois.
Dear Sirs:—The box of foundation arrived a few days ago in fine condition. I have kept bees for over thirty years, and have purchased foundation from many firms, and must say that your foundation is the nicest that I have ever used, and I wish to thank you for the prompt shipment and large amount of wax you secured for me. Yours truly,
Alburg, Vt. May 3, 1916. A. W. DARBY.

DADANT & SONS,
HAMILTON, ILLINOIS.